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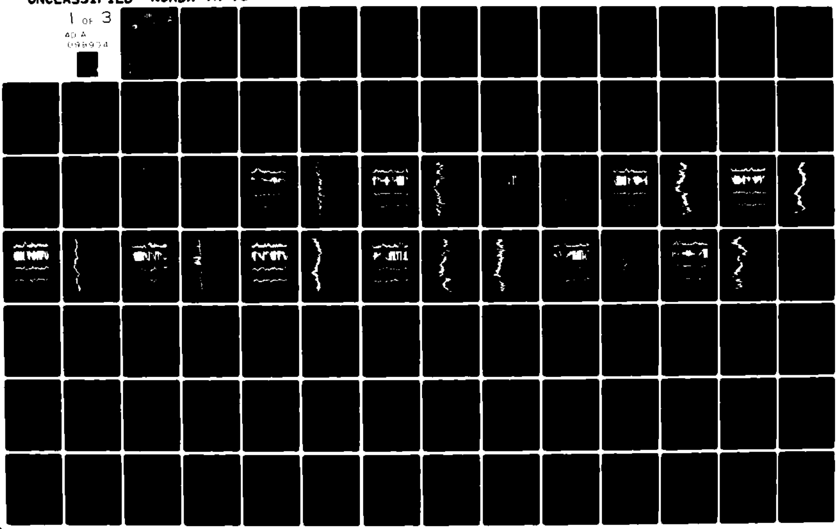
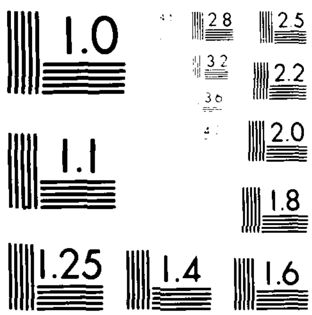




MICROCOPY RESOLUTION TEST CHART

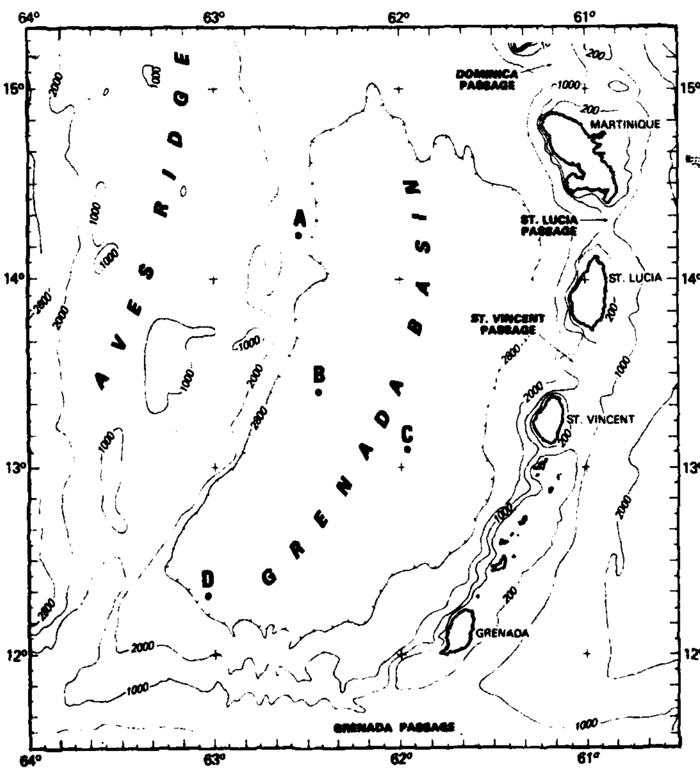
LEVEL II

NORDA Technical Note 76

Naval Ocean Research and Development Activity

NSTL Station, Mississippi 39529

Current Meter Data from the Southeastern Caribbean Sea, August 1978 to February 1979



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SEPTEMBER 1980

ABSTRACT

Thirteen vector-averaging current meters were deployed on four moorings in the southeastern Caribbean Sea from August 1978 to February 1979. Velocity and temperature data are presented graphically as time series, histograms, and as variance spectra. Low-pass filtered data (72 hour period at the half-power point) are presented graphically as progressive vector diagrams, vector diagrams (stick plots), time series, and spectra.

Scalar mean speeds ranged from 4 to 38 cm/s, and (mostly westward) vector mean speeds from 2 to 36 cm/s (all but one were less than 9 cm/s). The velocity and temperature variance were distributed among three frequency bands: subinertial, inertial, and tidal. In the velocity spectra the subinertial variance accounted for an average of 50% of the total variance, inertial 5%, and tidal 10%. In the temperature spectra the subinertial accounted for 75% of the total variance, inertial 1%, and tidal 10%. Individual records had peaks at periods between 10 and 45 days.

ACKNOWLEDGEMENTS

Lou Banchero of NORDA and the officers and crew of the USNS KANE deployed and recovered the moorings. Kim Saunders and Mark Bergin of NORDA and personnel from the Physical Oceanography Branch, Naval Oceanographic Office (NAVOCEANO), contributed to the development of the necessary computer programs. Dick Stanford of NAVOCEANO produced the plots.

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I. INTRODUCTION

The southeastern Caribbean Sea (Fig. 1) manifests intense mesoscale variability (Wyrtki et al., 1976), and it is the location of strong inflows from the Atlantic Ocean (Stalcup and Metcalf, 1972) which begin the Caribbean Current/Loop Current/Gulf Stream current system. Instabilities in these strong inflows may form eddies in Grenada Basin, west of the narrow passages through the southern Lesser Antilles (Leming, 1971).

We have examined the mesoscale variability in this region using both observations (Mazeika et al., 1980a and 1980b) and numerical modeling. Our goal is to understand the mesoscale variability through a synthesis of field observations and modeling, and to test a sophisticated numerical model in a regime different from the Gulf of Mexico, for which it was designed (Hurlburt and Thompson, in press).

In order to assess the time scales and energy levels of subinertial variability (presumably coincident with mesoscale spatial variability), four current meter moorings were deployed from August 1978 to February 1979 (Fig. 1 and Table 1). This report presents the preliminary analysis of the resulting data and the techniques used.

II. MEASUREMENTS

We used AMF vector averaging current meters (model 610), which recorded average speed, direction, and temperature every 15 minutes. Speed was accurate to ± 1 cm/s and the threshold of the Savonious rotor was 3 cm/s or lower. Direction was accurate to $\pm 3^{o}$. The installed thermistors were accurate to $\pm 0.1^{o}$C and were precise to $\pm 0.01^{o}$C. The manufacturer's manual (AMF, 1976) gives further details on instrument construction, and Woodward and Appel (1973) and McCullough (1975) describe determination of accuracies.

Actual depths of the instruments varied from the planned depths. Corrected depths given in Table 1 were estimated by comparing the temperature data with deployment and recovery cruise CTD profiles from Teague (1979) and Teague (1980). Corrected depths are used in the text, but planned depths are given on the figures.

III. PRESENTATION OF DATA

A. EDITING AND TIME SERIES

The data were first plotted as time series to examine each record for anomalous data. We removed beginning and ending transients, and replaced isolated spikes with interpolated values. Figures 2-26 display the edited series. Current meter problems are tabulated in Table 2. Seven of thirteen instruments ran for the full deployment without problem. Meter 296 had a noisy temperature record (Fig. 17) that was not amenable to simple editing. Meter 216 had no velocity data and meter 407 had an erratic temperature record (Fig. 24). Appropriate plots from these three meters are missing because of these data problems.

The records show high frequency fluctuations of 0.4-2.0 cycles per day (2.5-0.5 day periods) superimposed on lower frequency fluctuations of less than 0.1 cycles per day (10 day period). Later in this report we show that the 0.4-2.0 cycles per day fluctuations occur primarily at inertial and semi-diurnal frequencies.

Two peculiarities of the data are not instrumental errors as they might appear. The temperature spike near day 260 (all dates are in year-day for 1978; see Table 3) in Figure 7 corresponded to similar events at the other two instruments on mooring A (Figs. 3 and 5). Similarly, the large negative temperature excursion of meter 300 near day 260 in Figure 15 corresponded to similar events at the other instruments on mooring C (Figs. 17 and 19).

B. STATISTICS AND CURRENT HISTOGRAMS

Figures 27-38 show speed histograms, direction histograms, and cumulative speed distributions. Disregard those portions of the speed histograms lying at or below the VACM threshold of about 3 cm/sec.

Table 4 lists basic statistics. Scalar mean speeds varied from 4.5 to 38.5 cm/s, and vector mean speeds from 2.2 to 35.7 cm/s. Records from mooring A had the most unidirectional flow, closely followed by the mooring C records. Least unidirectional records were from mooring D, except from the deepest meter where the flow was as persistent as that at mooring A.

A significant mean flow was present in all records. At mooring A the mean flow was W, from WNW at the shallow meter to W at the two deeper meters. At mooring B the mean was also W, from WNW at the two shallower meters to WSW at the deepest meter. At mooring C the mean was NW, from N at the shallow meter, to NNW at the intermediate meter, to NW at the deepest meter. The monotonic sense of rotation of the mean at all three moorings was counterclockwise proceeding from the shallowest to the deepest meter. At mooring D the mean flow at the two shallowest meters was NNE, and the mean flow was S at the deepest meter.

C. SPECTRA OF UNFILTERED RECORDS

The east-north and clockwise-counterclockwise velocity spectra and temperature spectra are presented in Figures 39 to 108. Coherence magnitude squared and phase (for the east-north decomposition) and rotary coefficient (for the clockwise-counterclockwise decomposition) are also given. The rotary coefficient is the clockwise minus counterclockwise variance divided by their sum, and is zero for rectilinear motion and plus one for circular clockwise motion (e.g., Calman, 1978; Mooers, 1973; and Gonella, 1972). We use rotary spectral analysis extensively because of its independence from coordinate system orientation. In locations away from large topographic gradients, rotary spectra often prove more satisfactory than coordinate-dependent spectra.

Prior to spectral calculations, the number of points in the 190 day records were halved by low-pass filtering to remove high frequency (>1 cph) energy and resampling at 30 minute intervals. All records were then tapered with a Hann window and fast Fourier transformed. Spectra were corrected for the effects of the window and were frequency band averaged over frequency - increasing numbers of points to increase spectral stability and to reduce the number of points plotted at high frequencies. The frequency-dependent averaging scheme is reflected in the changing sizes of the confidence intervals and significance levels on the plots.

The record from current meter 298, the intermediate depth meter on mooring B, had typical results (Figs. 63-68). There was high variance density (Figs. 63 and 64) at frequencies below 1×10^{-2} cph (100 hours), a spectral valley separating these frequencies from the inertial peak (inertial frequency $\approx 1.93 \times 10^{-2}$ cph, or 52 hour period), a strong semidiurnal peak, then a decrease with about -2 slope to the Nyquist frequency. The Nyquist frequency was 1 cph for the resampled day

records, and 2 cph for the shorter records. Small peaks occurred at the first and second harmonics of the semidiurnal (M2) frequency.

The coherence squared between east and north components (Fig. 65) was generally significant. Typical of all records, a broad peak in coherence corresponded to the broad inertial peak in variance density. This peak extended toward frequencies higher than the local inertial frequency. A narrow peak in coherence corresponded to the narrow variance density peak at the semidiurnal frequency. The phase plot showed a plateau near $+90^{o}$ coincident with the broad inertial peak in spectral plots.

At most frequencies the rotary spectrum (Fig. 66) resembled the spectra from the east-north decomposition. Notably different were the domination of both the clockwise variance at the inertial peak and the domination of counterclockwise variance at the lowest frequencies. The rotary coefficient (Fig. 67) was nearly +1.00 across the inertial peak and about -0.60 at the lowest frequencies.

The temperature spectrum (Fig. 68) had high variance density at low frequencies, a small inertial peak, and peaks at the semidiurnal frequency and its first two harmonics. The temperature spectra typically lacked a clearly defined valley separating low-frequency and inertial variance.

The spectral results were all plotted as variance density, i.e., variance per frequency bandwidth. This presentation can obscure the relative amount of variance contained in different frequency segments. To examine the amount of variance in different segments, we constructed Tables 5 and 6 using three frequency ranges: low frequency, inertial, and tidal. The low frequency band was all harmonic coefficients at frequencies less than 1.39×10^{-2} cph (72 hour period), the inertial band was the first harmonic coefficient at a frequency higher than the inertial frequency, and the tidal segment was the sum of the two harmonic coefficients nearest 4.18×10^{-2} cph (23.93 hours, K1) and 8.05×10^{-2} cph (12.42 hours, M2). The total variance is that represented by the harmonic coefficients after correcting for tapering. The tables list both variance and percent of total variance.

Several effects reduce the precision of these calculations. Because the spectra have high variance densities at the lowest frequencies, longer records have more low frequency variance. The inertial peak is typically quite broad, but only one estimate was used to represent this peak (it was always the largest harmonic coefficient within the inertial peak). The tidal peaks were defined by harmonic coefficients representing frequency bands that were not centered on the tidal frequencies. Finally, the total variance was calculated after filtering (longest records only) and tapering (a correction was applied), so that this variance is not identical to the variance of the original time series. In spite of these effects, the tables quantitatively show the division of variance corresponding to peaks in the spectral plots.

The record from meter 298, for example, had 87% of its velocity variance and 82% of its temperature variance in the three categories. Examining the velocity variance of all records, low frequencies accounted for about 50%, inertial for about 5%, and tidal for about 10% of the total variance. For temperature, low frequencies accounted for about 75%, inertial for about 1%, and tidal for about 10% of the total variance. In all cases the sum of the three categories included over 50% of both the velocity and temperature variances.

Table 7 lists data for the inertial frequency. Inertial waves (or near-inertial waves) would be expected to have the following properties: equipartition of energy between east and north components, all variance in the clockwise component, a coherence of 1.00, and a phase between east and north components of $+90^{\circ}$. Table 7 shows that this was nearly satisfied in all records, even those from the deepest current meters.

Table 8 lists tidal variance at the diurnal frequency, semidiurnal frequency, and at the first two harmonics of the semidiurnal frequency. For both velocity and temperature the semidiurnal variance is much greater than diurnal variance. There was often no peak at the diurnal frequency, while the semidiurnal frequency always had a peak, usually a prominent one. The first harmonic of the semidiurnal frequency usually had a peak that contained more variance than was contained at the diurnal frequency.

D. LOW PASS FILTER

Our primary interest in these data is in the low frequency variability. In order to examine this region of the spectrum more carefully, we low-pass filtered the time series to remove inertial and higher frequencies. We chose 1.39×10^{-2} cph (72 hours) as the half power point of the filter because this frequency is in the spectral valley that separated the low frequency and the inertial peaks in the longest records. Following filtering, the series were resampled every 12 hours. Examination of the records after filtering revealed: about 99% of the variance at 8.6×10^{-3} cph (116 hours) passed, about 0.2% of the variance passed at 1.8×10^{-2} cph (56 hours, the inertial period at mooring D); about 2×10^{-4}% of the variance passed at 2.0×10^{-2} cph (49 hours, the inertial period at mooring A); and about 2×10^{-10}% of the variance passed at 8.1×10^{-2} cph (12.4 hours, the M2 tide). Because of the long filter length used, about eight days were lost from each end of the records.

Table 9 compares the low frequency variance estimated from the spectra of the unfiltered records (Tables 5 and 6) to the variance in the spectra of the filtered series (discussed in further detail later). For the longest records, about 90% of the velocity and about 100% of the temperature variance passed the filter. Because the frequency bands were not identical for the filtered and unfiltered calculations, and because the series lengths were different, agreement between unfiltered and filtered variance is imperfect.

E. LOW-PASS FILTERED RECORDS

After low-pass filtering the records, current and temperature series were again plotted (Figs. 109-143). Velocity was plotted as a progressive vector diagram and as a stick plot, and temperature was plotted as a time series.

The progressive vector diagram for meter 298 (Fig. 121), for example, shows variability at periods of 10 to 20 days imposed on the mean (3.9 cm/s at 290°T; see Table 4). The mean itself can be viewed as the resultant of two long segments of flow, the first about 50 days long (240 to 290) northward and the second about 100 days long (290 to 390) west-southwestward.

Results from the progressive vector diagrams enlarge upon the conclusions drawn from the basic velocity statistics in section 3-B. The flow at mooring A tended to be W. Greatest variability occurred at the deepest meter (Fig. 115): flow W for about 40 days, S for about 80, then NW. At mooring B the flow was initially N for about 60 days, then predominantly W or SW. Mooring C indi-

mainly W or NNW flow. The most variable flows were at mooring D (Figs. 135, 138, 141). The upper meter indicated S for for about 60 days, then mostly N. Flow at 850 m was predominantly SSE for 60 days, then became N. At the deepest meter (1650 m) flow was predominantly S. Superimposed upon these flows were occasional closed paths, which may indicate the passage of eddies or waves.

The vector or stick plot (e.g., Fig. 122) is a vector plotted every 12 hours along a time axis. The length of the vector is proportional to speed, and the direction of the arrow from the time-axis to the tip is current direction; north is up in all our plots. Although the low pass filter had a half-power point at 72 hours, plotting vectors every 12 hours resolves clearly motions of a few days' period.

Three features characterize the low passed temperature time series plots. The first is a large amplitude modulation of the records at very long periods (only a few cycles per 100-178 day record). The second is an intermediate amplitude periodicity ranging between 10 to 30 day periods (4 to 1 x 10^{-3} cph) and the last is a low amplitude, 4-16 day period (10 to 7 x 10^{-3} cph) oscillation, which is also evident from the spectral analysis in the next section.

F. SPECTRA OF LOW-PASS FILTERED RECORDS

The low-passed spectra are displayed as periodograms (magnitude squared of the coefficients of the Fourier decomposition) plotted for periods greater than or equal to 72 hours, the half-power point of the filter. Unsmoothed periodograms are erratic because the variance estimates are inconsistent (their variability does not decrease as record length increases), but we chose to let the eye rather than the computer smooth the plots because, depending on record length, only 10-58 raw spectral estimates were available.

Since rotary spectra are independent of coordinate system orientation, plots from the rotary decomposition not from the east-north decomposition are presented here. In virtually all cases, however, peaks in the rotary spectra have corresponding peaks in the east-north spectra.

Low-passed current rotary spectra and the rotary coefficient (clockwise minus counterclockwise variance divided by their sum) are given in Figures 144 to 178. Counterclockwise motion dominates long periods (low frequencies) down to about 10 days (4.0 x 10^{-3} cph) in the upper meters of all moorings and the intermediate meters of moorings B and C (for the upper meter of D, the counterclockwise domination is true only down to about 35 days). Predominantly clockwise motion with periods from 8 to 30 days (5.0 to 1.0 x 10^{-3} cph) characterizes the intermediate and deep meters of mooring A. No preferred sense of rotation is evident for most meters at periods shorter than 8 days.

Moorings A, B, and D have maximum variance density at the very longest periods and spectra falling off with about a -2 slope, with various local maxima between 30 and 10 days (1.0 to 4.0 x 10^{-3} cph). Mooring C, the only mooring clearly located over the Grenada Basin abyssal plain, has distinctive inverted U-shaped spectra. Significant peaks with variance densities as large or larger than those at very long periods occurred at 45-50 days (0.9 to 0.8 x 10^{-3} cph) (shallow and deep meters), 20-30 days (2.0 to 1.0 x 10^{-3} cph) (all three meters), and 10 days (4 x 10^{-3} cph) (intermediate depth meter).

The low-passed temperature spectra show many peaks at a variety of periods. The large amplitude, very low frequency motion - if indeed it is periodic - cannot

be resolved with these record lengths; but the large amplitude is reflected in the great low frequency variance density of the temperature spectra. Only one meter, the deepest of mooring D, however, appears to have a particular low frequency peak, at about a 50 day period (0.8×10^{-3} cph).

The intermediate amplitude periodicity between 10-30 day periods (4.0 to 1.0×10^{-3} cph) is ill-defined in the temperature spectra. No particularly dominant periods appear. Nine meters have peaks between 10 and 20 days (4.0 to 2.0×10^{-3} cph), while four have peaks between 25-35 days (1.6 to 1.0×10^{-3} cph). The 4-6 day (10.0 to 7.0×10^{-3} cph) oscillation evident in most of the temperature time series plots is perhaps reflected in the plethora of peaks visible in virtually all spectra at 3-9 day periods (14.0 to 4.6×10^{-3} cph).

IV. SUMMARY

Four current meter moorings with thirteen AMF vector averaging current meters were deployed in the southeastern Caribbean from August 1978 to February 1979 as part of a study to examine space and time scales of the mesoscale variability in the area.

Significant mean flows were observed at all moorings. Scalar mean speeds were 4.5 to 38.5 cm/s and vector mean speeds 2.2 to 35.7 cm/sec. Flow at mooring A was generally W, at B, first N then W or SW, and at C, N or NNW. Net flow at the upper meters of D (250 m and 850 m) was N, but substantial direction changes on a 1-4 month time scale occurred three times. Flow at mooring D's deepest meter (1650 m), however, was persistently S.

High variance densities at subinertial frequencies (presumably corresponding to the mesoscale processes of interest) were separated from inertial and tidal peaks by a distinct spectral valley in the current spectra, but by a considerably less conspicuous valley in the temperature spectra. In the velocity spectra, the subinertial variance accounted for about 50% of the total variance, inertial for about 5%, and tidal for about 10%. In the temperature spectra the corresponding values were 75%, 1%, and 10%.

The data were filtered to pass only energy at subinertial frequencies and were resampled at a 12 hour interval. Many peaks appeared in the spectra of the filtered data, but not at any particular frequencies.

In the current spectra, variance at moorings A, B, and D was maximum at lowest frequencies and declined with increasing frequency (shorter periods). A variety of minor peaks were seen between 10 and 30 days (4.0 to 1.0×10^{-3} cph). Spectra from mooring C had a distinctive inverted "U" shape, with significant peaks at one or more meters at about 45 days (0.9×10^{-3} cph), 20-30 days (2.0 to 1.0×10^{-3} cph) and 10 days (4.0×10^{-3} cph).

Filtered temperature spectra had variance falling off with increasing frequency and a plethora of minor peaks. Four meters had peaks between 25-35 days (1.7 to 1.0×10^{-3} cph), nine between 10-20 days (4.0 to 2.0×10^{-3} cph), and all meters between 3-9 days (14.0 to 4.6×10^{-3} cph).

Finally, a significant temperature event appeared near day 260 in the time series from moorings A and C. We have no explanation for its cause, but do not think it is due to instrument malfunction, since it appears in all six records from two widely separated moorings.

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Table 1. Mooring Summary

Mooring	Location and Water Depth	Date Deployed and Recovered	Meter Number	Planned Depth (m)	Estimated Depth (m)	Record Length (days)
A	14-10.4 N	5 August 1978	406	193	100	55
	62-33.7 W	10 February 1979	416	393	300	120
	2583 m		412	793	700	190
B	13-24.3 N	5 August 1978	219	193	200	60
	62-26.9 W	13 February 1979	298	393	400	190
	2983 m		417	793	800	190
C	13-04.9 N	6 August 1978	300	150	150	190
	61-59.4 W	14 February 1979	296	350	350	110
	2983 m		410	750	750	190
D	12-19.6 N	6 August 1978	289	150	250	190
	63-01.8 W	14 February 1979	216	350	450	0[1]
	2895 m		407	750	850	190
			414	1500	1650	190

NOTE 1. No velocity data; 190 day temperature record.

Table 2. Current Meter Problems

Mooring and Planned Depth	Serial No.	Description
A193	406	Stopped early (55 days record length)
A393	416	Stopped early (120 days record length)
A793	412	None
B193	219	Stopped early (60 days record length)
B393	298	None
B793	417	None
C150	289	None
C350	296	Stopped early (110 days record length) Noisy temperature record
C750	410	None
D150	289	None
D350	216	No velocity data
D750	407	Erratic temperature record
D1500	414	None

Table 3. Day Conversion

Year-Day 1978	Date
1	1 January 1978
213	1 August 1978
244	1 September 1978
274	1 October 1978
305	1 November 1978
335	1 December 1978
366	1 January 1979
397	1 February 1979
425	1 March 1979

Table 4. Velocity Statistics

Mooring and Current Meter	Scalar Speed (cm/s)			Vector Mean (cm/s, °T)		Maximum Component Speeds (cm/s)			
	Mean	Standard Deviation	Maximum	Speed	Direction	East	West	North	South
A 406	38.5	12.6	69.2	35.7	287	1.1	67.9	58.6	35.3
A 416	11.8	6.8	39.6	8.6	264	10.6	37.6	26.5	25.6
A 412	10.1	6.1	38.3	5.0	260	18.7	36.1	21.9	27.0
B 219	12.3	5.5	35.0	4.3	301	19.6	26.6	28.8	34.2
B 298	9.8	5.2	31.3	3.9	290	17.4	30.9	26.7	24.5
B 417	6.7	3.4	24.5	3.1	256	13.7	20.5	14.5	17.3
C 300	13.7	7.3	40.8	7.2	352	39.4	33.3	36.0	25.6
C 296	9.9	5.4	31.8	4.3	336	29.6	25.0	24.9	15.0
C 410	7.6	3.9	23.3	3.7	304	16.6	22.9	20.5	14.1
D 289	12.9	7.4	40.9	2.2	019	34.1	25.8	40.6	35.6
D 416	-	-	-	-	-	-	-	-	-
D 406	9.3	4.8	31.7	2.1	022	27.5	14.7	30.2	25.4
D 414	4.5	2.2	14.9	2.7	176	11.1	9.3	6.5	14.3

Table 5. Velocity Variance (cm^2/s^2, %)

	Total	Low Frequency[1]	Inertial[2]	Tidal[3]
A 406	289 (100)	119 (41)	21 (7)	26 (9)
A 416	91 (100)	55 (60)	1 (1)	10 (11)
A 412	101 (100)	73 (73)	5 (5)	5 (5)
B 219	157 (100)	100 (64)	3 (2)	16 (11)
B 298	125 (100)	88 (70)	6 (5)	15 (12)
B 417	48 (100)	28 (59)	6 (12)	5 (9)
C 300	291 (100)	132 (45)	10 (4)	30 (10)
C 296	125 (100)	81 (65)	1 (1)	9 (8)
C 410	57 (100)	30 (52)	5 (9)	6 (11)
D 289	205 (100)	156 (76)	19 (9)	6 (3)
D 216	-	-	-	-
D 407	88 (100)	62 (70)	5 (6)	4 (5)
D 414	13 (100)	5 (39)	2 (14)	2 (14)

1. Sum of estimates with periods longer than 72 hours.

2. First estimate with period shorter than inertial period.

3. Sum of two estimates nearest 12.42 hours (M2) and 23.93 hours (K1).

Table 6. Temperature Variance ($^oC^2$, %)

	Total	Low Frequency[1]	Inertial[2]	Tidal[3]
406	1.88 (100)	0.80 (42)	0.01 (1)	0.77 (41)
416	0.92 (100)	0.56 (61)	0.02 (2)	0.12 (13)
412	0.37 (100)	0.31 (83)	0.004 (1)	0.01 (4)
219	0.51 (100)	0.38 (75)	0.01 (1)	0.03 (7)
298	0.29 (100)	0.21 (73)	0.01 (2)	0.02 (7)
417	0.018 (100)	0.014 (77)	0.000 (1)	0.001 (5)
300	0.85 (100)	0.68 (80)	0.01 (1)	0.03 (4)
296	-	-	-	-
410	0.032 (100)	0.024 (74)	0.00 (1)	0.05 (15)
289	0.56 (100)	0.39 (71)	0.01 (2)	0.09 (17)
216	-	-	-	-
407	-	-	-	-
414	0.0003 (100)	0.0002 (75)	0.0000 (5)	0.0000 (6)

1. Sum of estimates with periods longer than 72 hours.

2. First estimate with period shorter than inertial period.

3. Sum of two estimates nearest 12.42 hours (M2) and 23.93 hours (K1).

Table 7. Inertial Variance[1]

	Variance (cm/s)^2				East-North Coherence	
	East	North	Total	Clockwise	(Coherence)^2	Phase
406	5.8	14.8	20.6	17.6	0.91	124
416	0.4	0.2	0.6	0.6	0.94	93
412	2.2	2.3	4.6	5.7	0.90	87
219	1.6	1.7	3.4	3.3	1.00	93
298	2.9	3.6	6.5	6.3	0.92	90
417	3.1	2.6	5.6	5.5	0.92	83
300	5.2	5.2	10.4	10.1	0.91	83
296	0.3	0.4	0.7	0.6	0.93	95
410	2.4	2.7	5.2	5.1	0.96	89
289	9.2	9.9	19.1	18.9	0.95	88
216	-	-	-	-	-	-
407	2.3	2.8	5.2	5.0	0.89	83
414	1.1	0.8	1.8	1.7	0.80	86

1. The first coefficient with center frequency higher than inertial was used. In all cases this coefficient had the highest variance density within the broad inertial peak.

Table 8. Tidal Variance[1]

	Velocity (cm/s)^2				Temperature (°C)^2			
	Diurnal	Semidiurnal	H_1	H_2	Diurnal	Semidiurnal	H_1	H_2
406	1.57	24.5	6.62	2.00*	0.010	0.759	0.030	0.009
416	0.77*	9.7	1.75	0.43*	0.010	0.111	0.039	0.004*
412	-	-	-	-	-	-	-	-
219	0.38*	16.1	1.11*	0.57*	0.001*	0.032	0.011	0.001*
298	0.43*	14.9	0.60	0.22	0.002	0.017	0.003	0.001
417	0.29*	4.2	0.49	0.15	0.0001	0.0009	0.0003	0.0001
300	1.32	28.2	2.12	0.92	0.003*	0.031	0.009	0.002
296	0.79*	8.6	0.65	0.52	-	-	-	-
410	0.50	5.6	0.73	0.25	0.0001	0.0046	0.0001	0.00005
289	-	-	-	-	-	-	-	-
216	-	-	-	-	-	-	-	-
407	0.45*	3.6	0.54	0.14*	0.001*	0.001	0.0003	0.0001*
414	0.13	1.7	0.06	0.03	2×10^{-6}	16×10^{-6}	2×10^{-6}	1×10^{-6}*

1. Diurnal is the coefficient nearest 23.93 hours (K1) and semidiurnal is the coefficient nearest 12.42 hours (M2). H_1 and H_2 are the first and second harmonics of M2. An asterisk indicates that the amplitude was not larger than both of the two adjacent coefficients.

Table 9. Low-Pass Variance

	Record[1] Length (days)	Velocity Variance Unfiltered[2] $(cm/s)^2$	Velocity Variance Low-Pass $(cm/s)^2$	Velocity Variance Percent (%)	Temperature Variance Unfiltered[2] $(^oC)^2$	Temperature Variance Low-Pass $(^oC^2$	Temperature Variance Percent (%)
406	30	119	86	72	0.80	0.56	70
416	100	55	49	90	0.56	0.48	86
412	172	101	72	72	0.37	0.31	84
219	35	100	73	72	0.38	0.21	54
298	174	88	88	101	0.21	0.22	102
417	174	28	24	86	0.014	0.015	104
300	174	132	131	99	0.68	0.66	98
296	90	81	86	106	-	-	-
410	174	30	29	97	0.024	0.023	98
289	174	156	142	91	0.39	0.33	84
216	-	-	-	-	-	-	-
407	174	62	57	92	-	-	-
414	174	5	5	97	0.0002	0.0002	96

1. The low-pass filtering reduced the useful length of the time series.

2. The unfiltered variance is the variance that was estimated for the low frequency segment of the spectrum. See Tables 5 and 6.

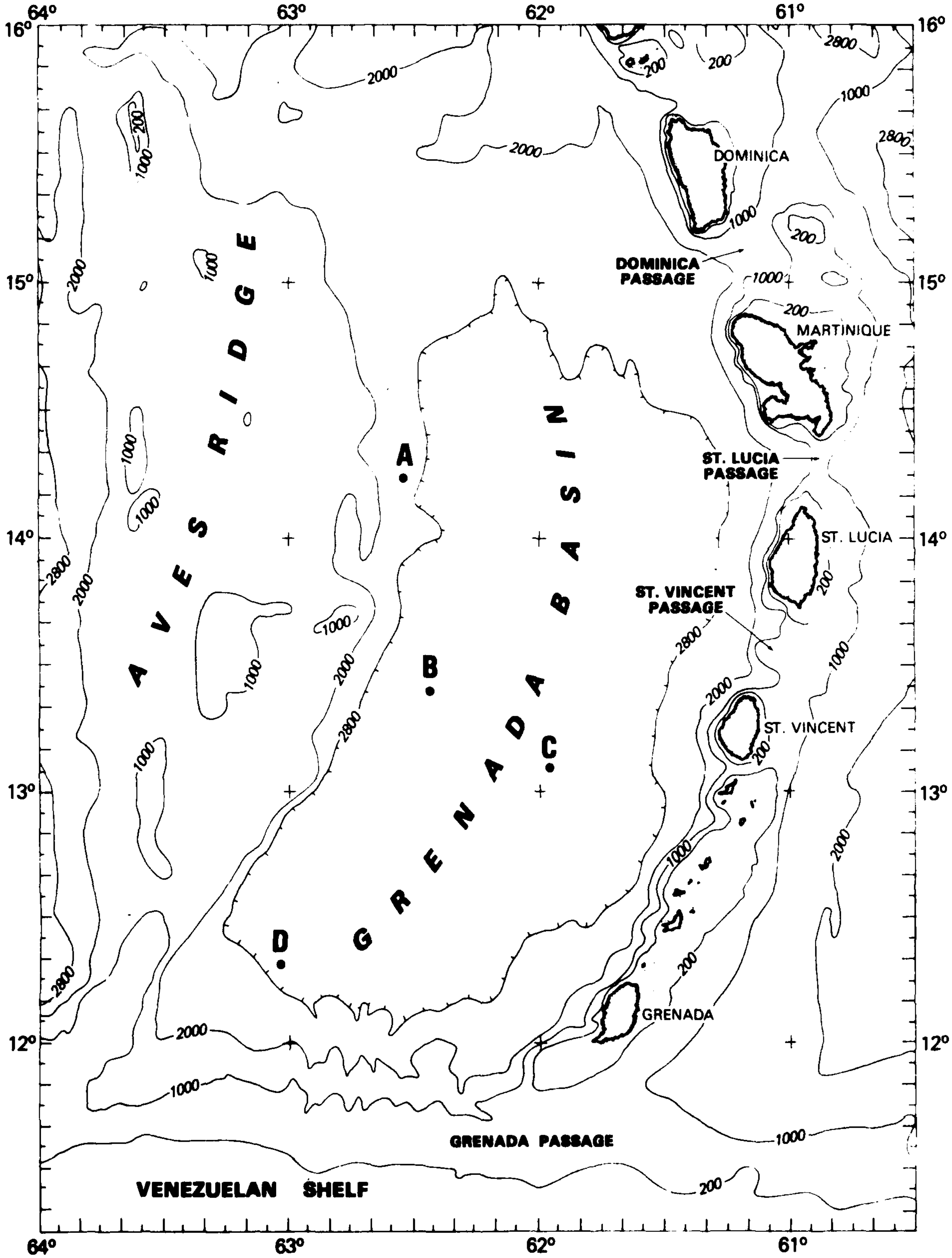
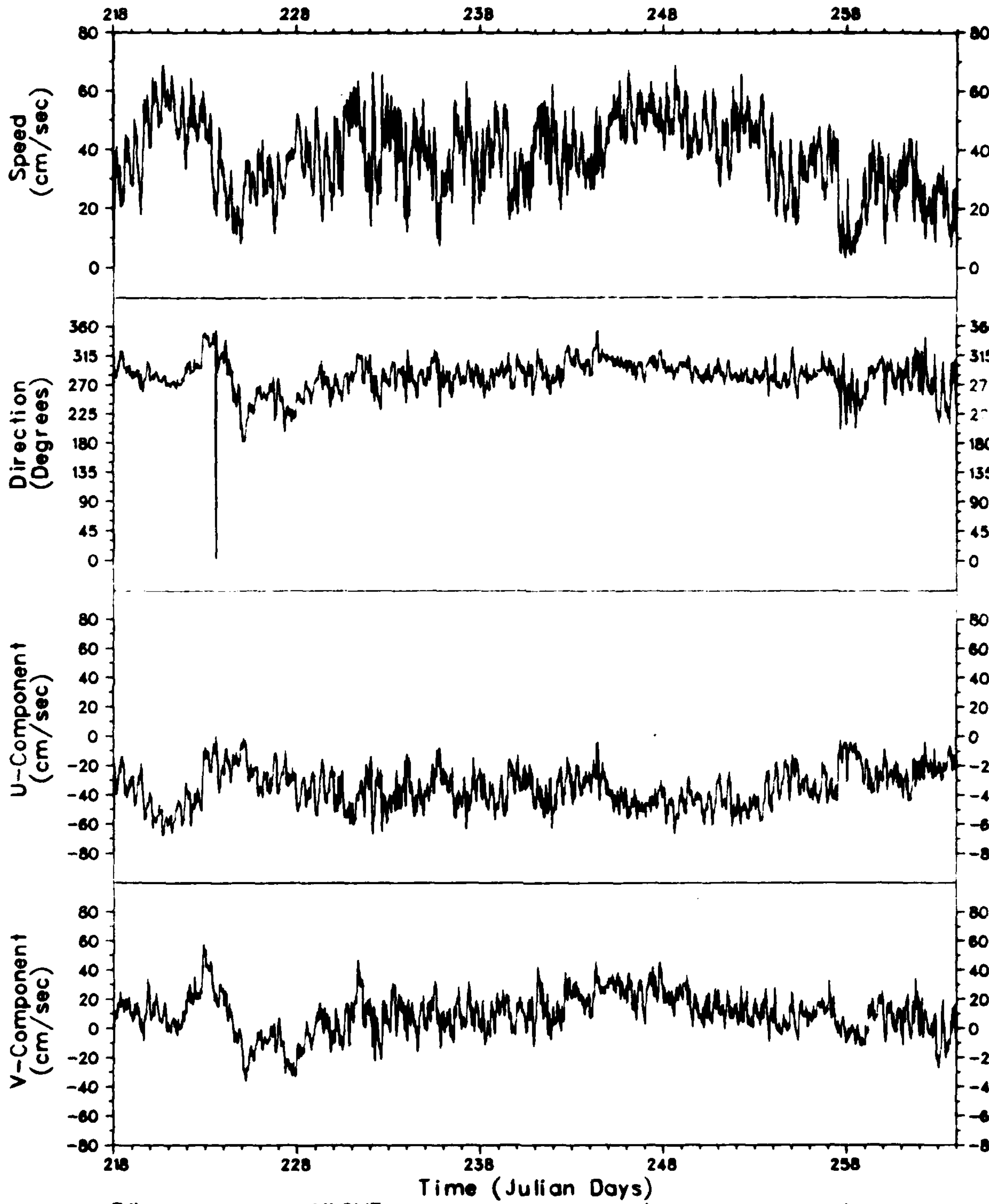
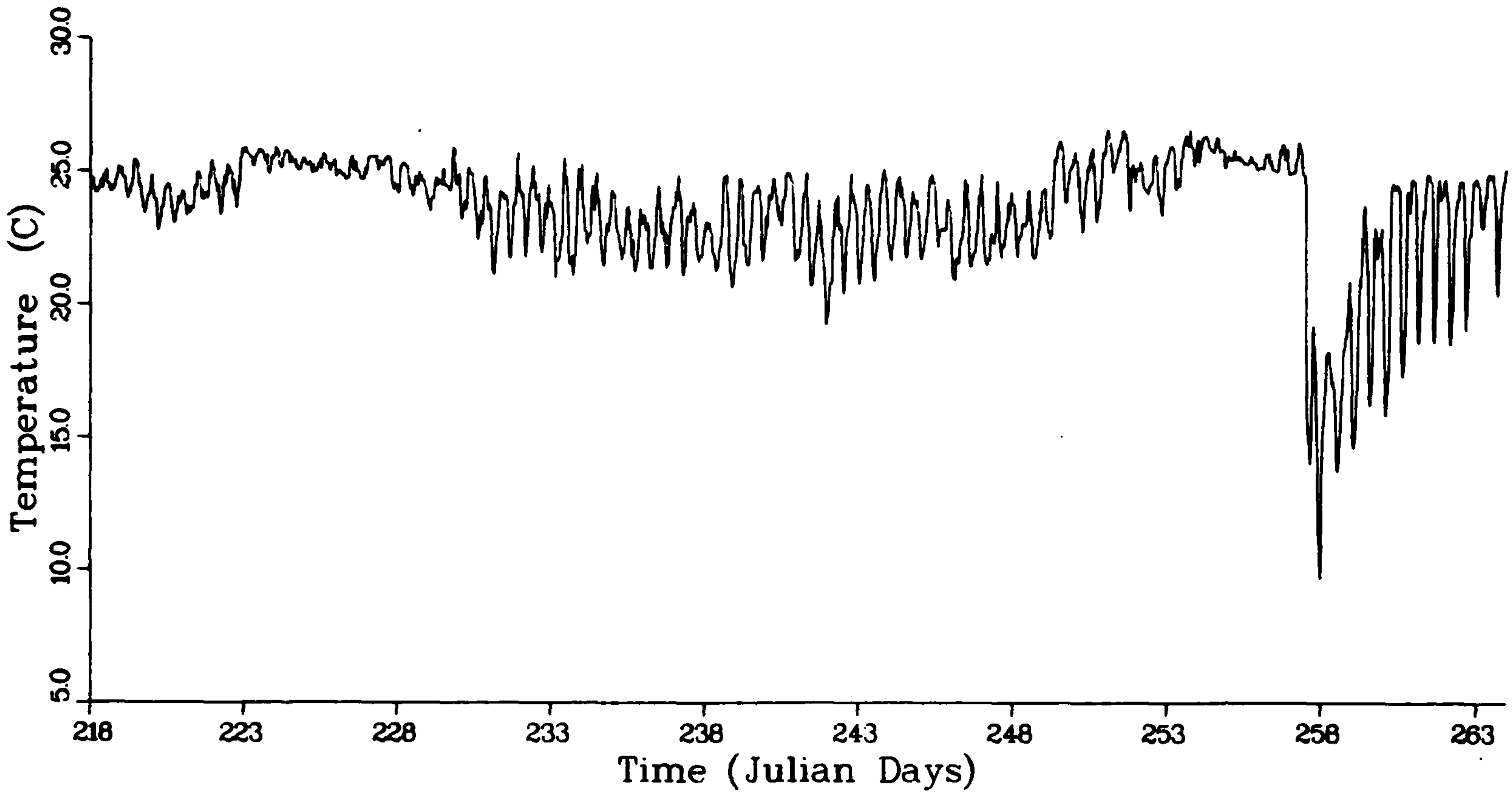


Figure 1. Location of moorings



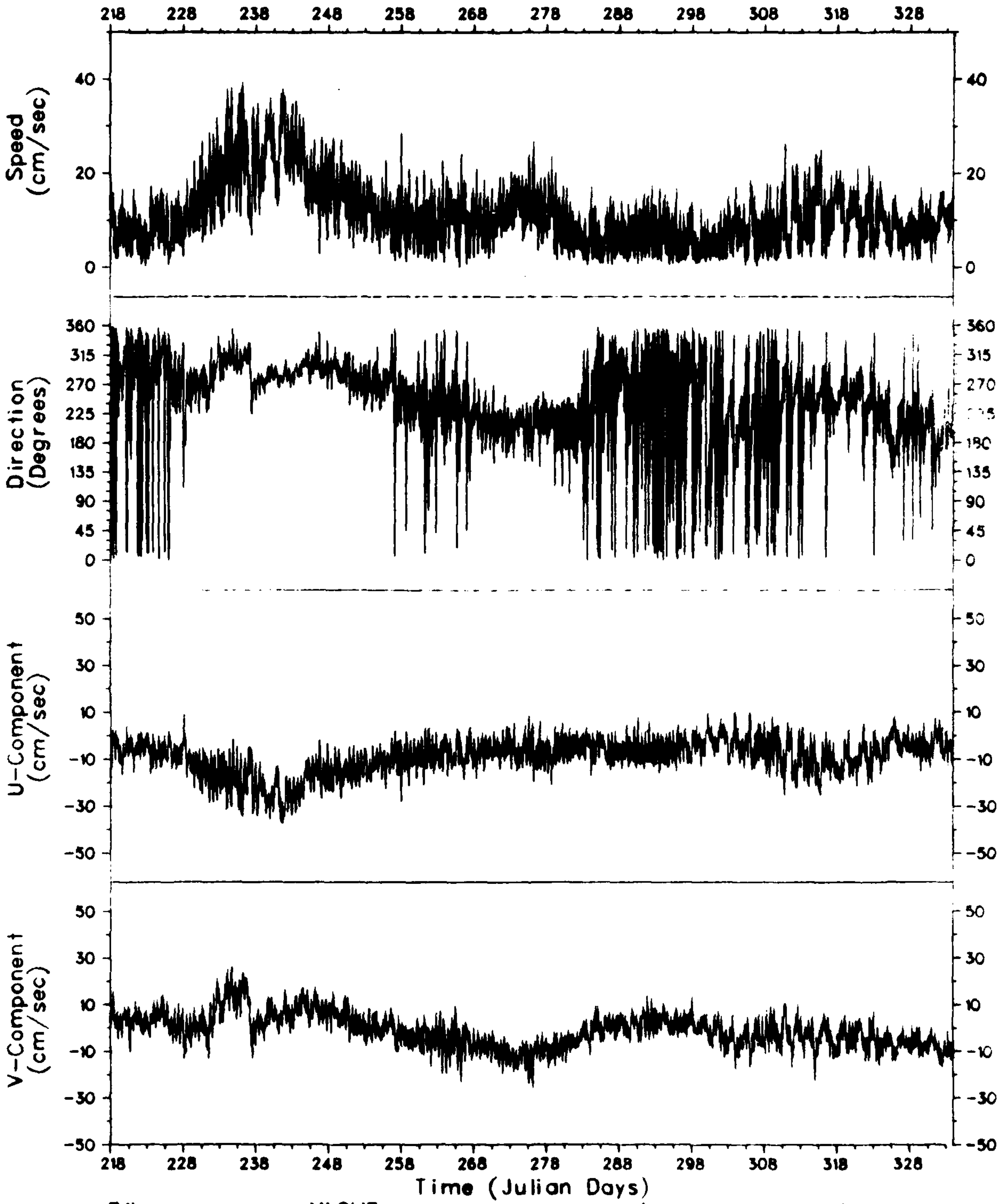
File :	VACMF	Array :	A
Meter :	406	Depth :	193
Latitude :	14.17300	Start :	06 AUG 1978
Longitude :	62.54450	End :	21 SEP 1978

Figure 2. Meter 406 current time series



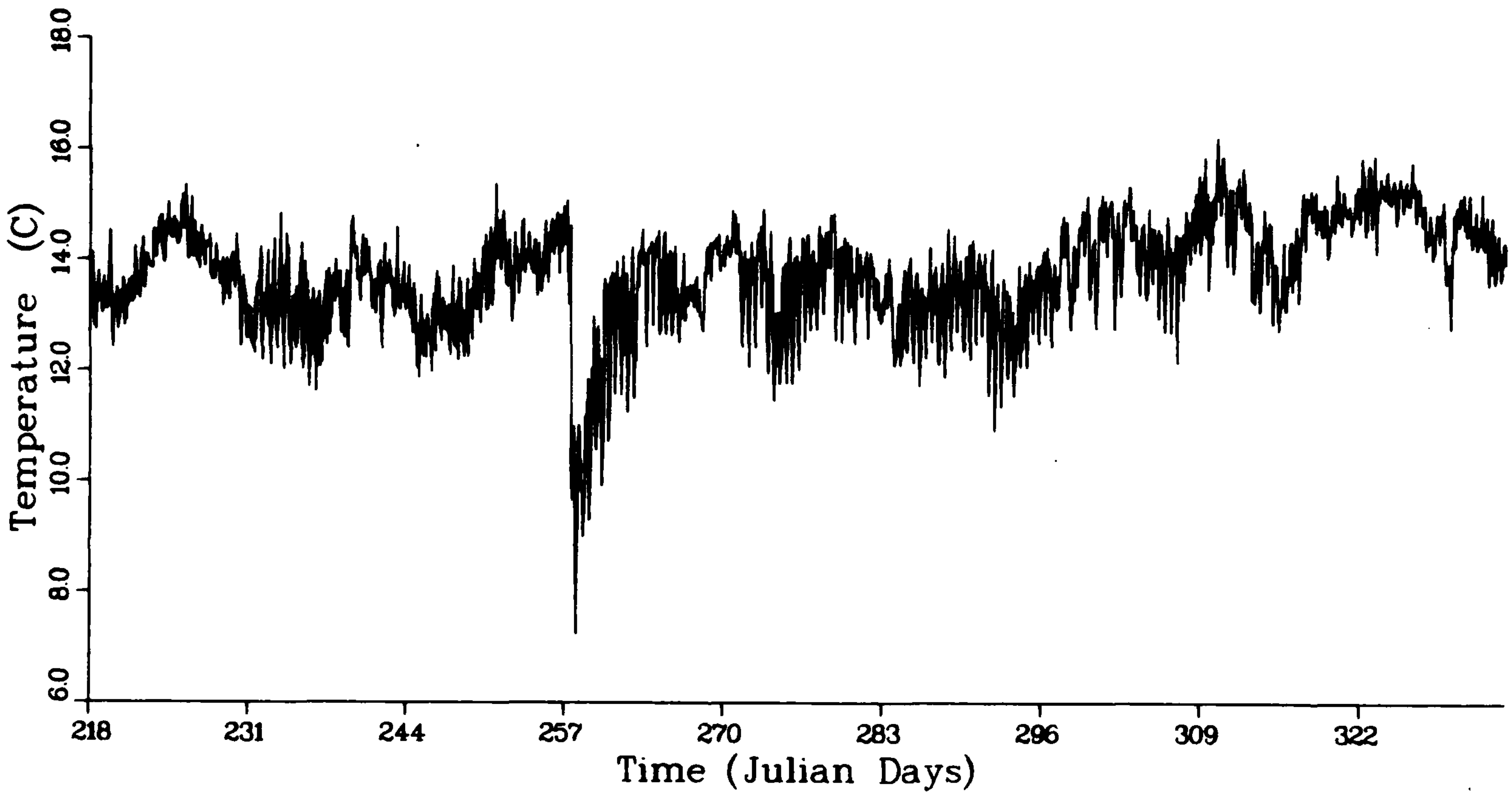
File :	VACMF	Array .	A
Meter :	406	Depth :	193
Latitude :	14.17300	Start :	06 AUG 1978
Longitude:	62.54450	End :	21 SEP 1978

Figure 3. Meter 406 temperature time series



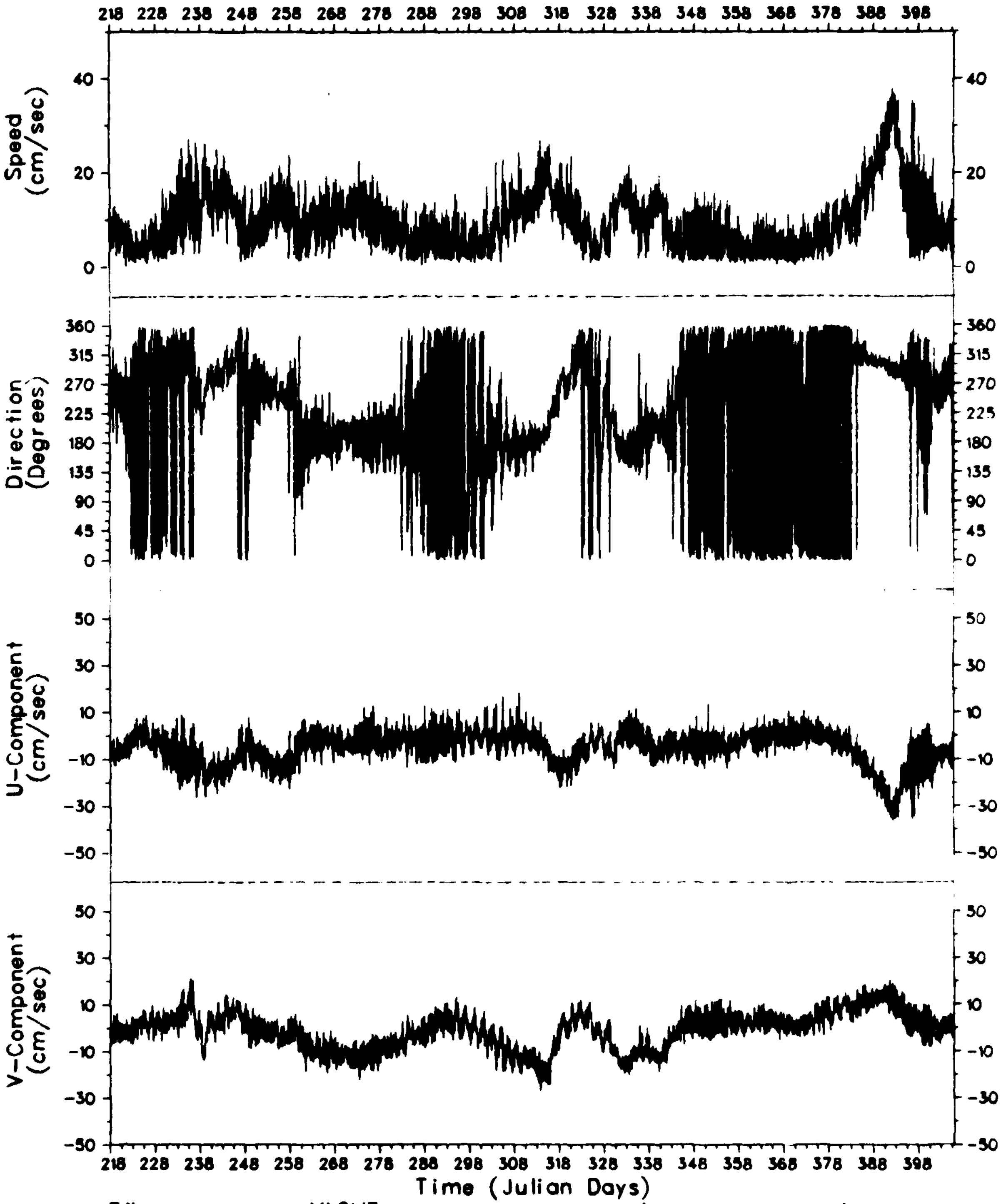
File :	VACMF	Array :	A
Meter :	416	Depth :	393
Latitude :	14.17300	Start :	06 AUG 1978
Longitude :	62.54450	End :	30 NOV 1978

Figure 4. Meter 416 current time series



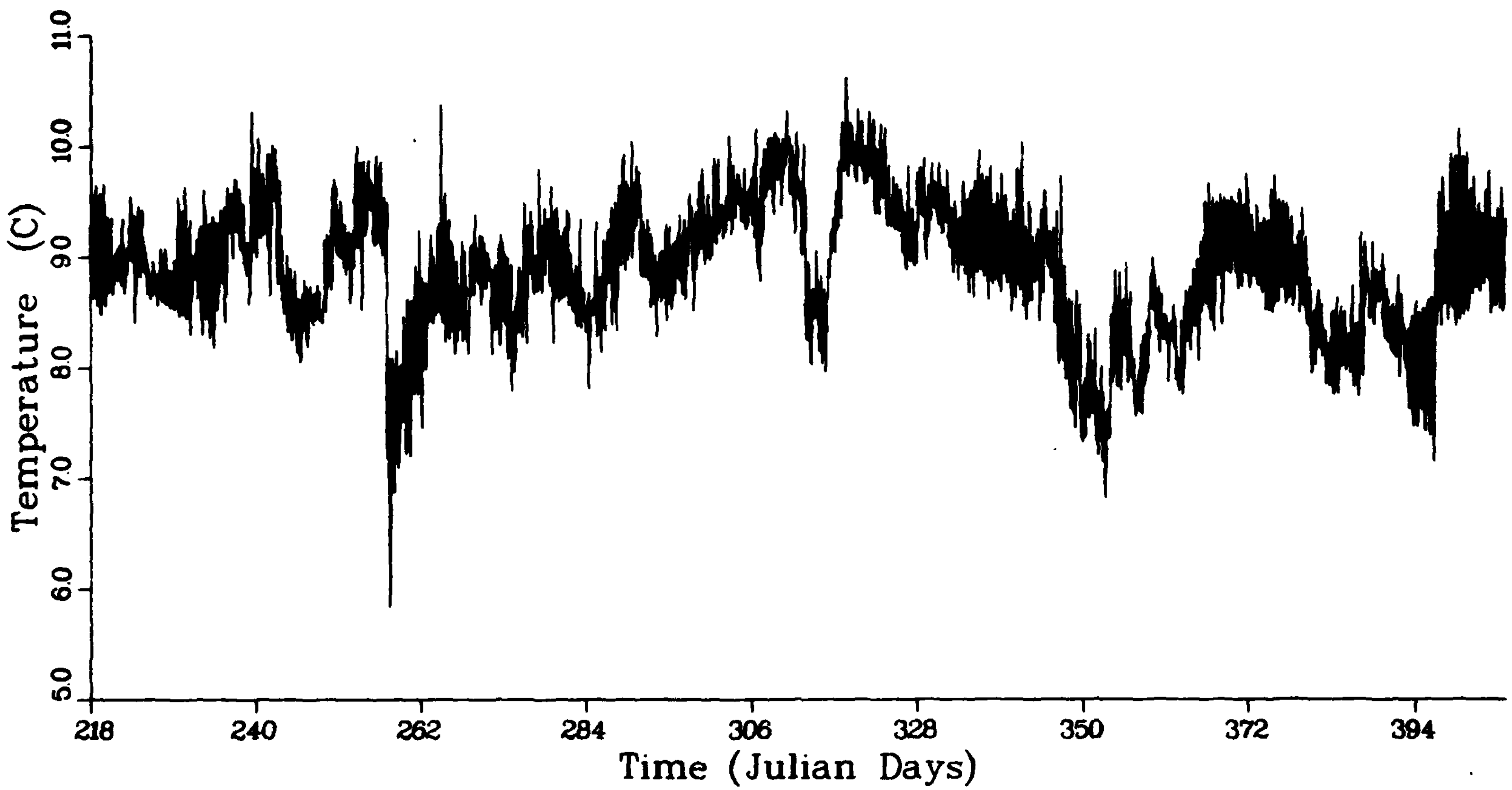
File :	VACMF	Array :	A
Meter :	416	Depth :	393
Latitude :	14.17300	Start :	06 AUG 1978
Longitude:	62.54450	End :	30 NOV 1978

Figure 5. Meter 416 temperature time series



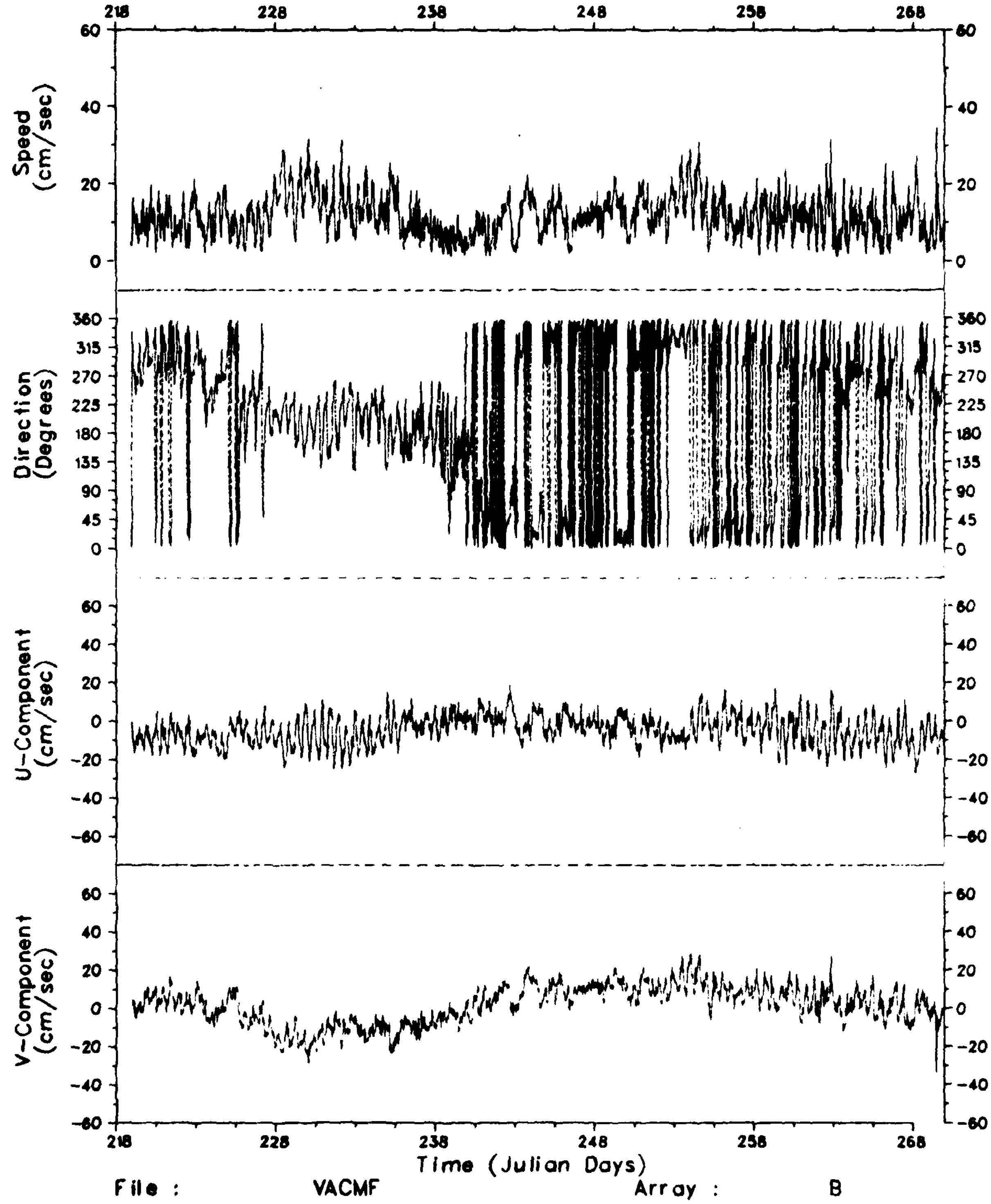
File :	VACMF	Array :	A
Meter :	412	Depth :	793
Latitude :	14.17300	Start :	06 AUG 1978
Longitude :	62.54450	End :	28 FEB 1979

Figure 6. Meter 412 current time series



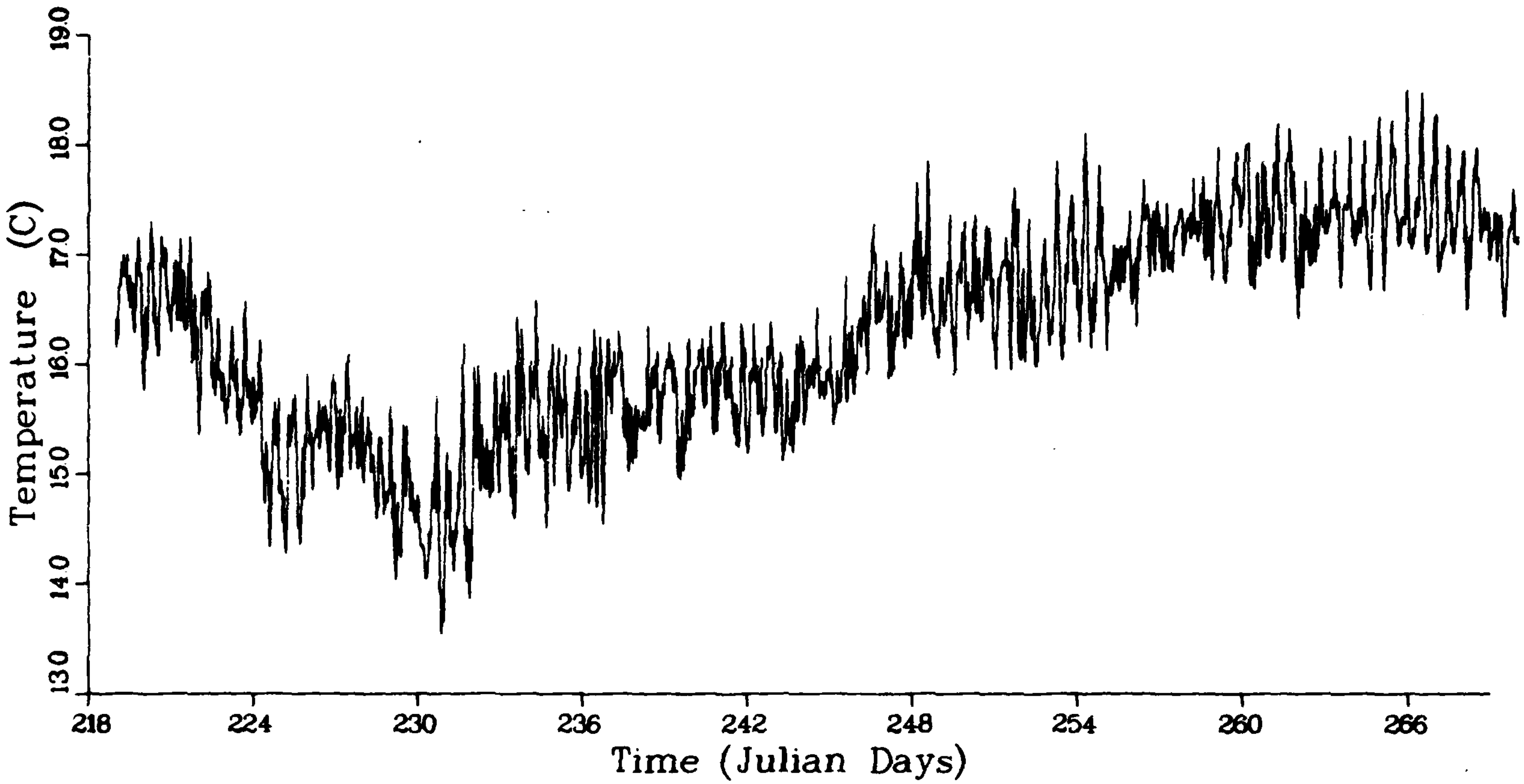
File :	VACMF	Array	A
Meter :	412	Depth :	793
Latitude :	14.17300	Start :	06 AUG 1978
Longitude:	62.54450	End :	28 FEB 1979

Figure 7. Meter 412 temperature time series



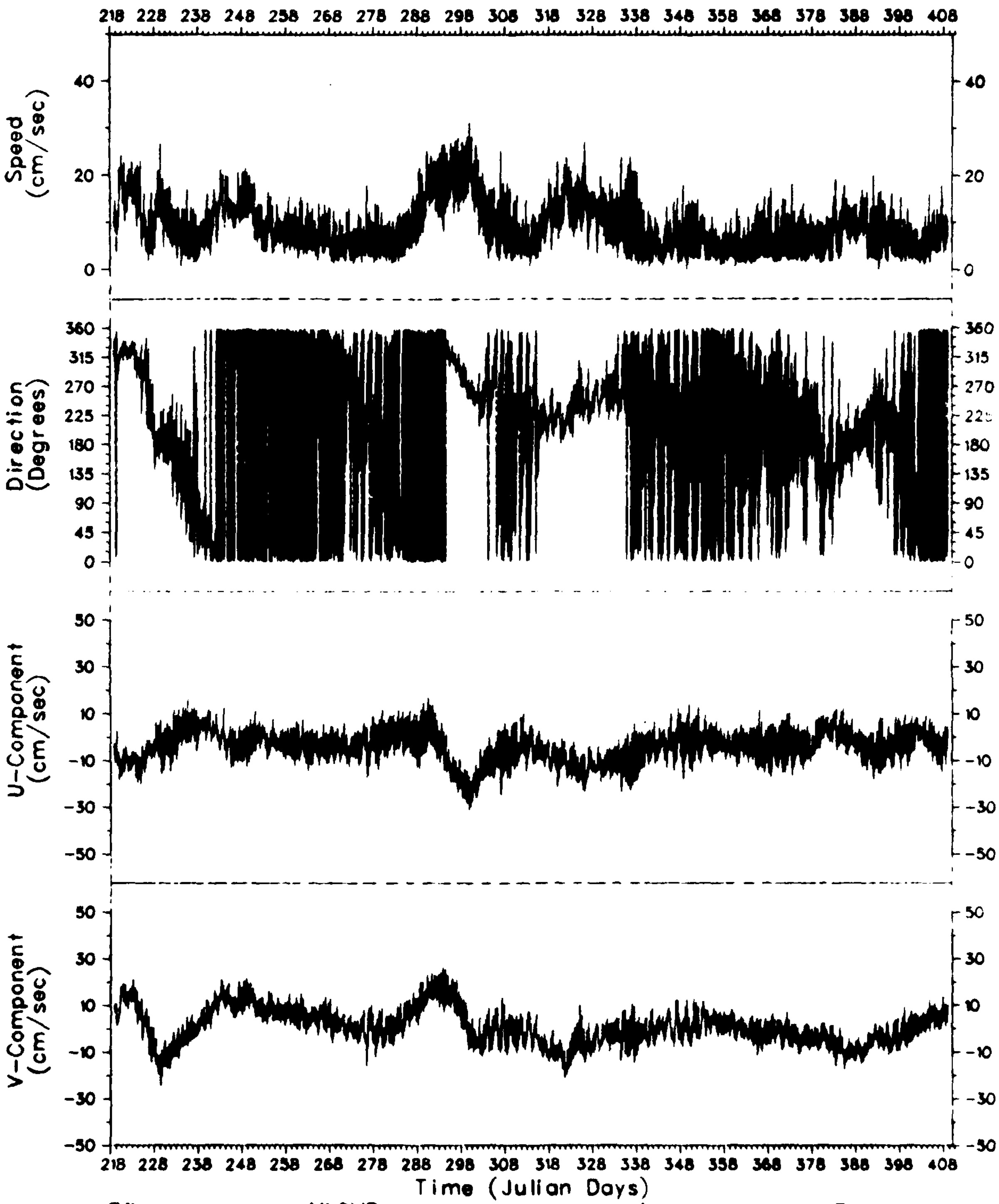
File :	VACMF	Array :	B
Meter :	219	Depth :	193
Latitude :	13.40500	Start :	07 AUG 1978
Longitude :	62.44900	End :	27 SEP 1978

Figure 8. Meter 219 current time series



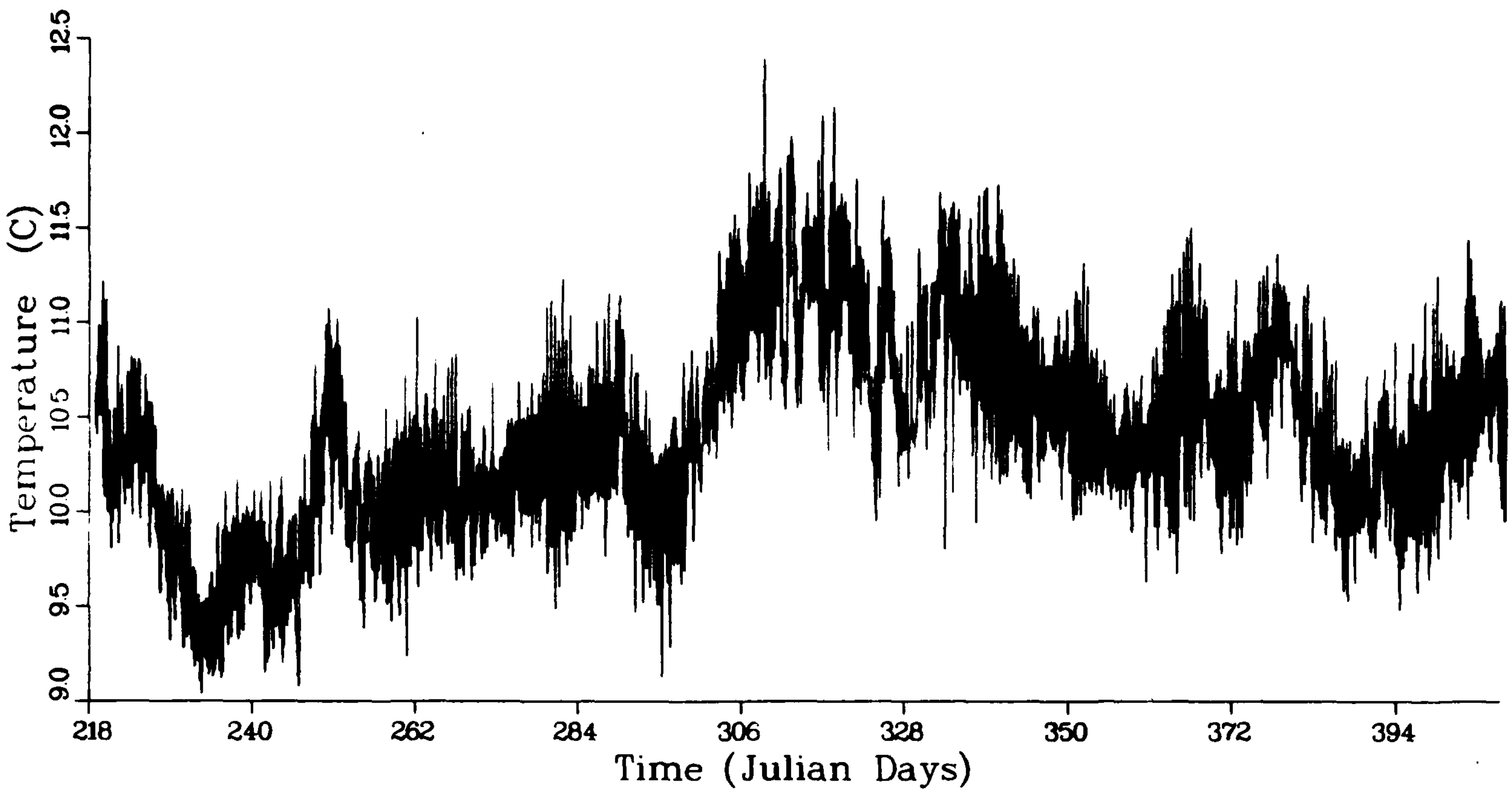
File :	VACMF	Array :	B
Meter :	219	Depth :	193
Latitude :	13.40500	Start :	07 AUG 1978
Longitude:	62.44900	End :	27 SEP 1978

Figure 9. Meter 219 temperature time series



File :	VACMF	Array :	B
Meter :	298	Depth :	393
Latitude :	13.40500	Start :	07 AUG 1978
Longitude :	62.44900	End :	13 FEB 1979

Figure 10. Meter 298 current time series



File :	VACMF	Array :	B
Meter :	298	Depth :	393
Latitude :	13.40500	Start :	07 AUG 1978
Longitude:	62.44900	End :	13 FEB 1979

Figure 11. Meter 298 temperature time Series

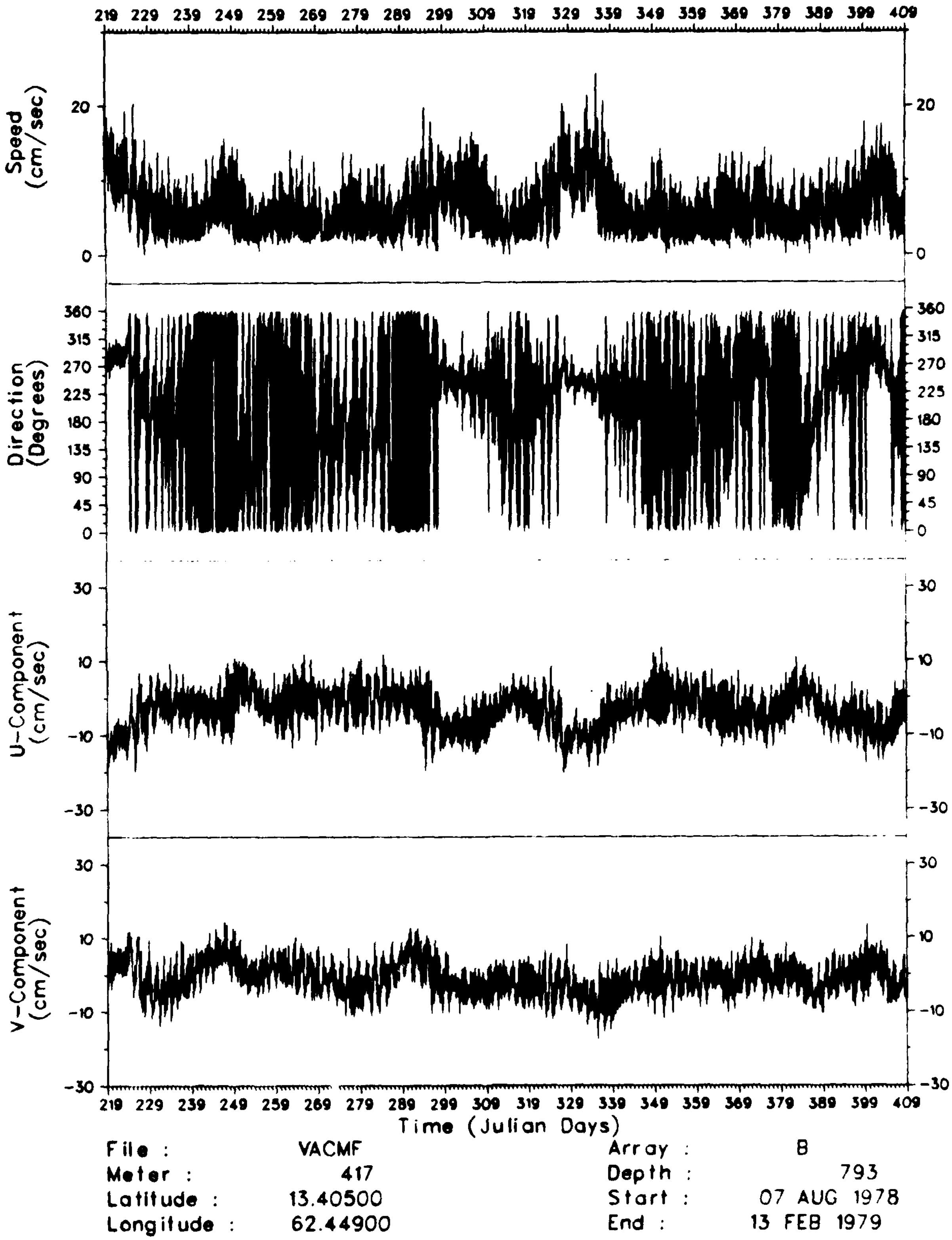
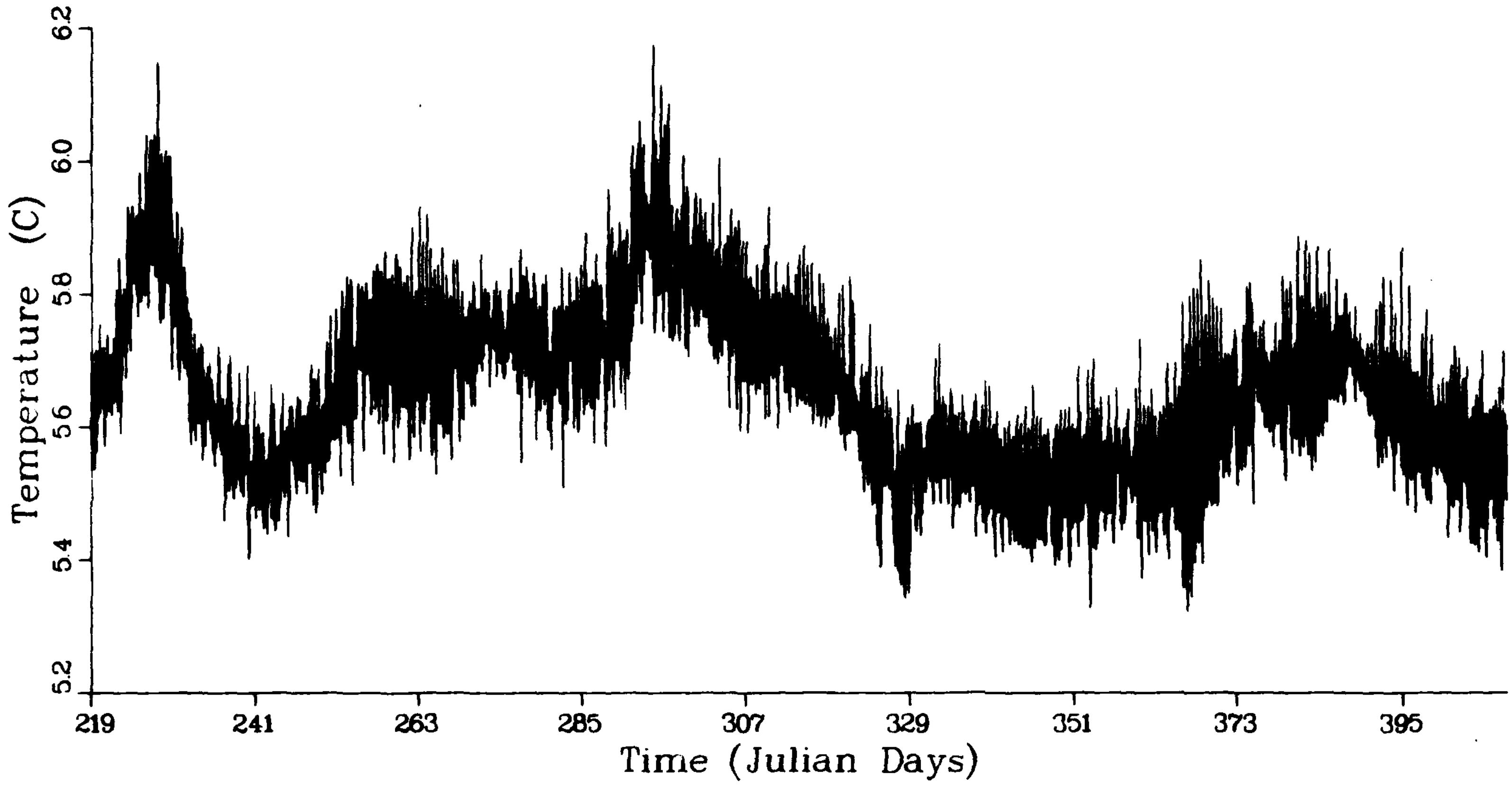


Figure 12. Meter 417 current time series



File :	VACMF	Array	B
Meter :	417	Depth :	793
Latitude :	13.40500	Start :	07 AUG 1978
Longitude:	62.44900	End :	13 FEB 1979

Figure 13. Meter 417 temperature time series

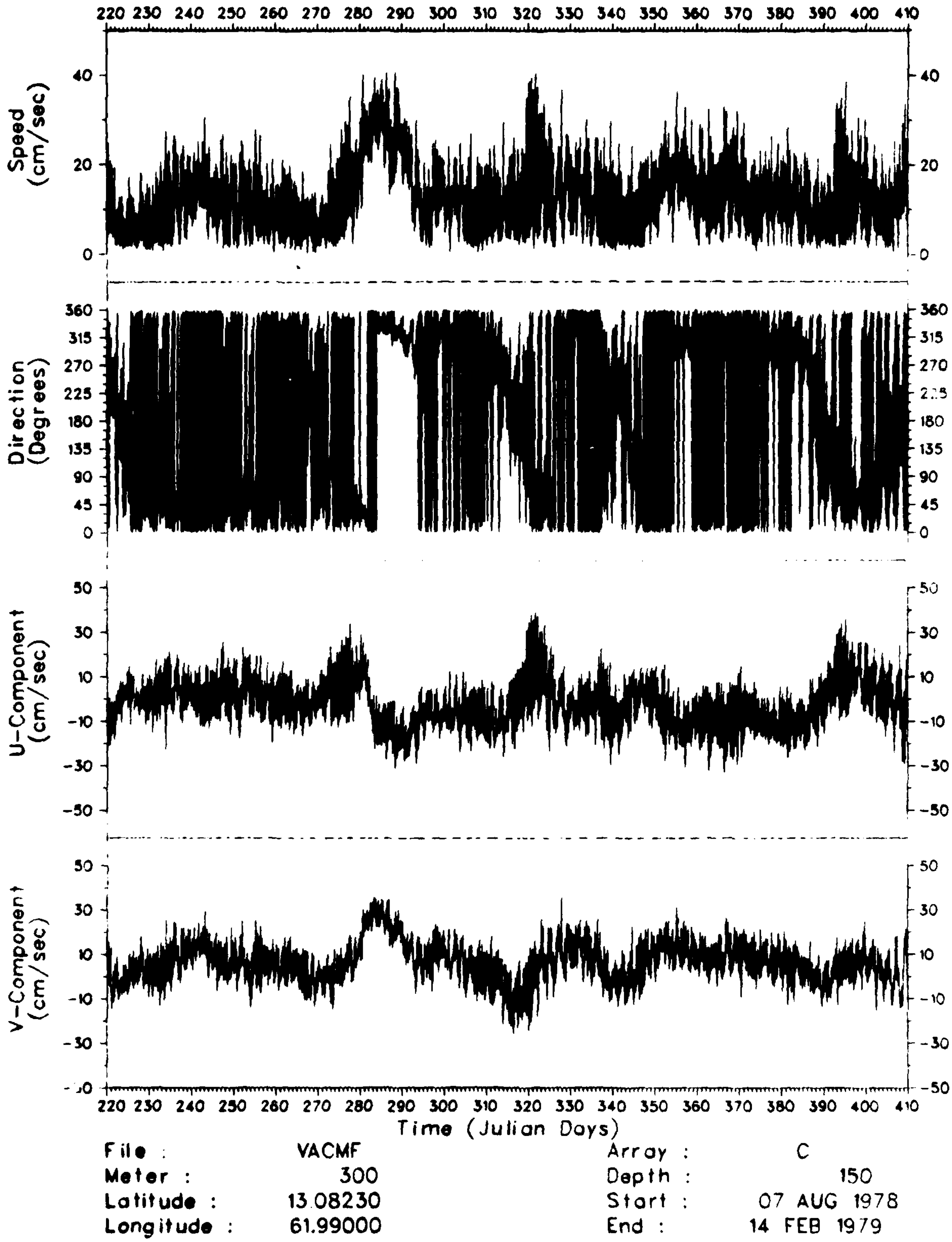
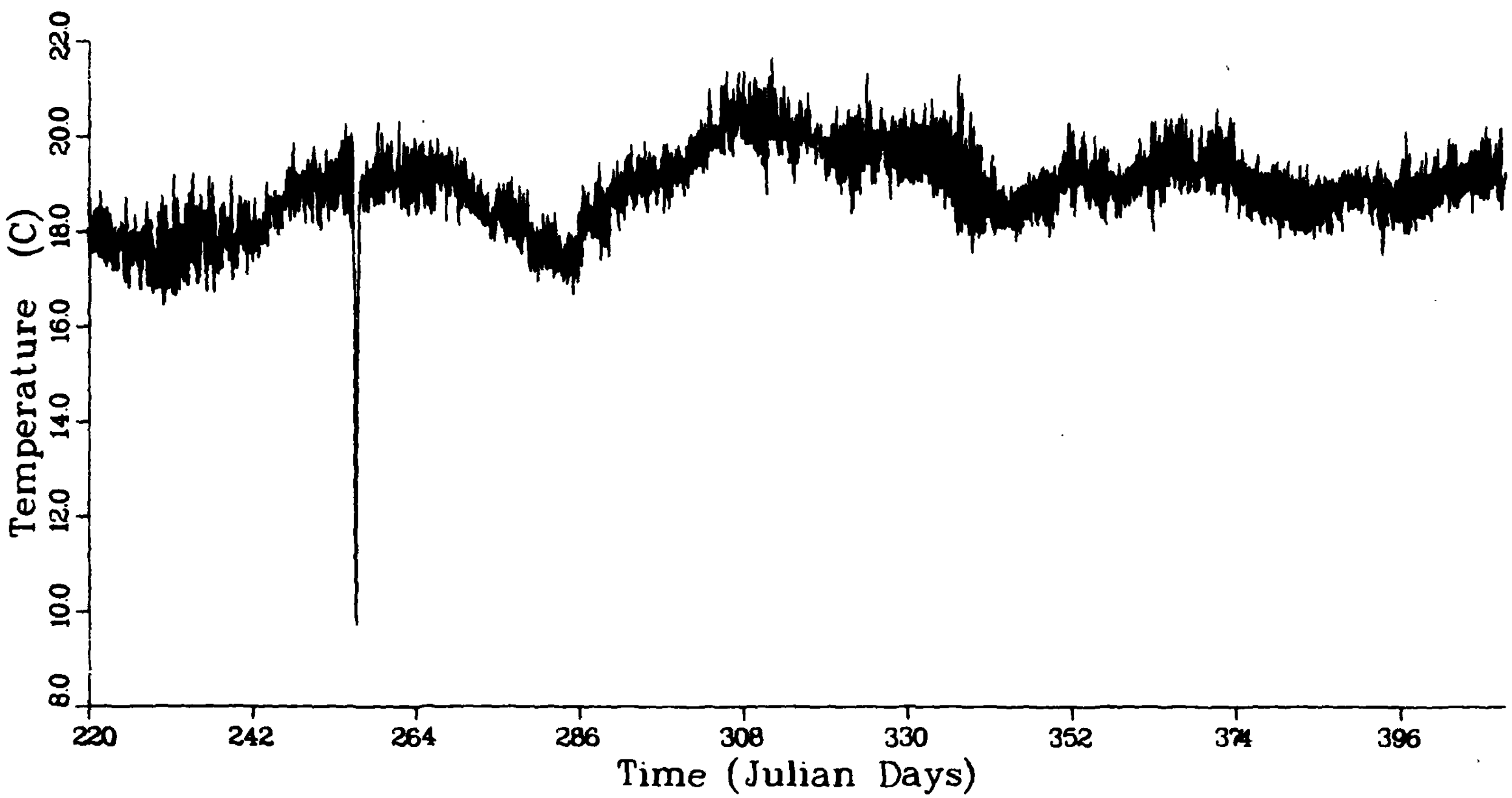


Figure 14. Meter 300 current time series



File :	VACMF	Array :	C
Meter :	300	Depth :	150
Latitude :	13.08230	Start :	07 AUG 1978
Longitude:	61.99000	End :	14 FEB 1979

Figure 15. Meter 300 temperature time series

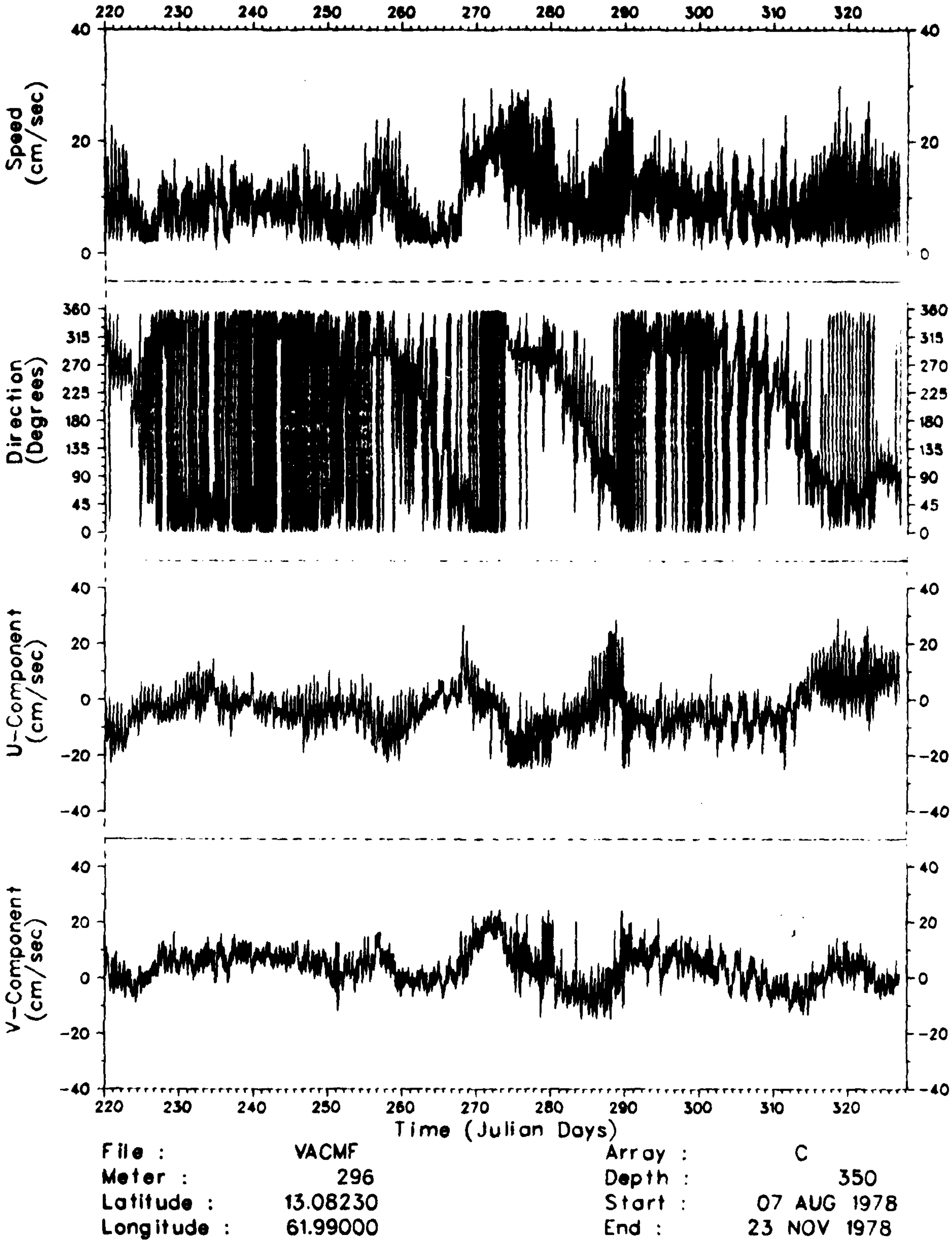
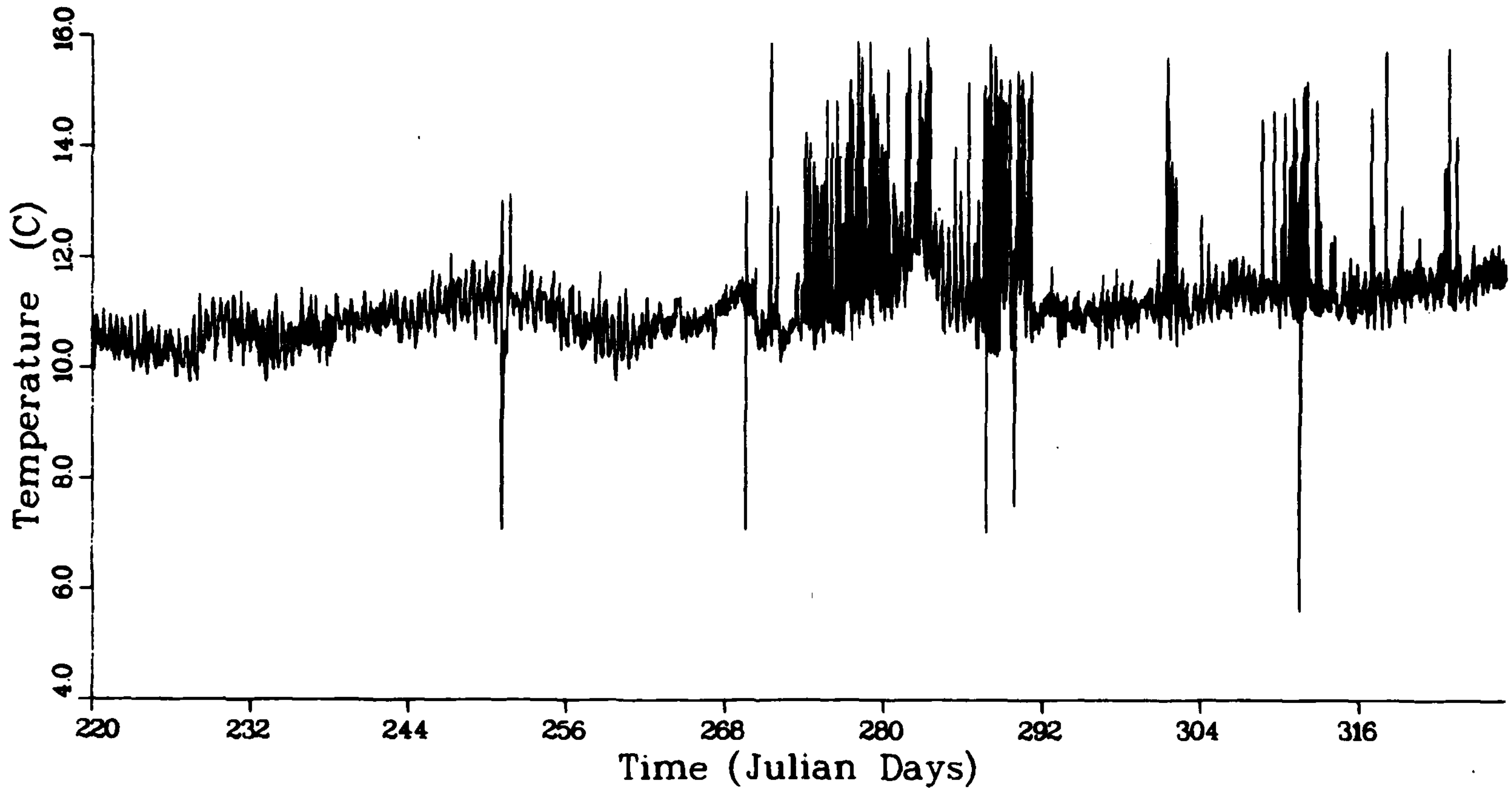


Figure 16. Meter 296 current time series



File :	VACMF	Array	C
Meter .	296	Depth :	350
Latitude :	13.08230	Start :	07 AUG 1978
Longitude:	61.99000	End :	23 NOV 1978

Figure 17. Meter 296 temperature time series

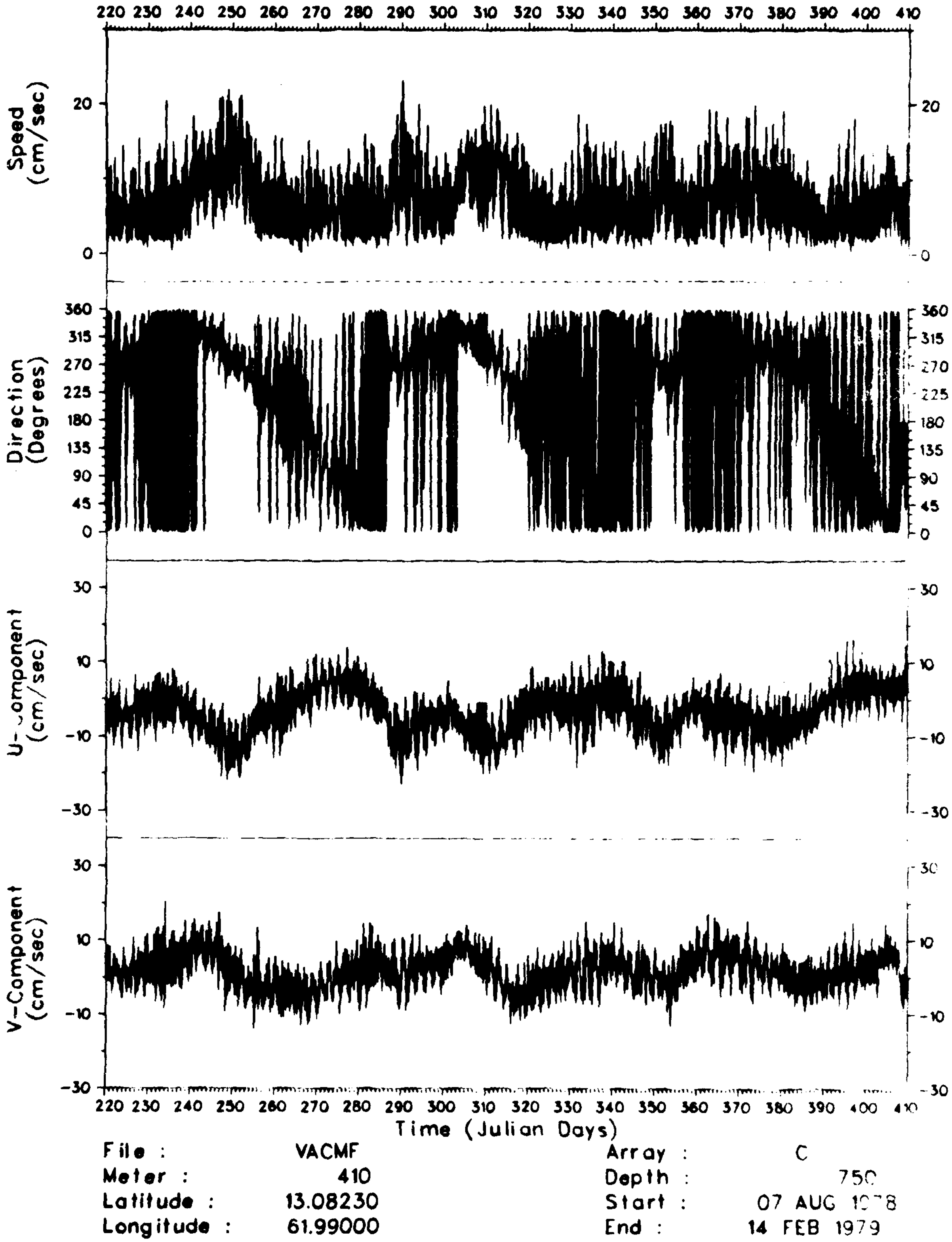
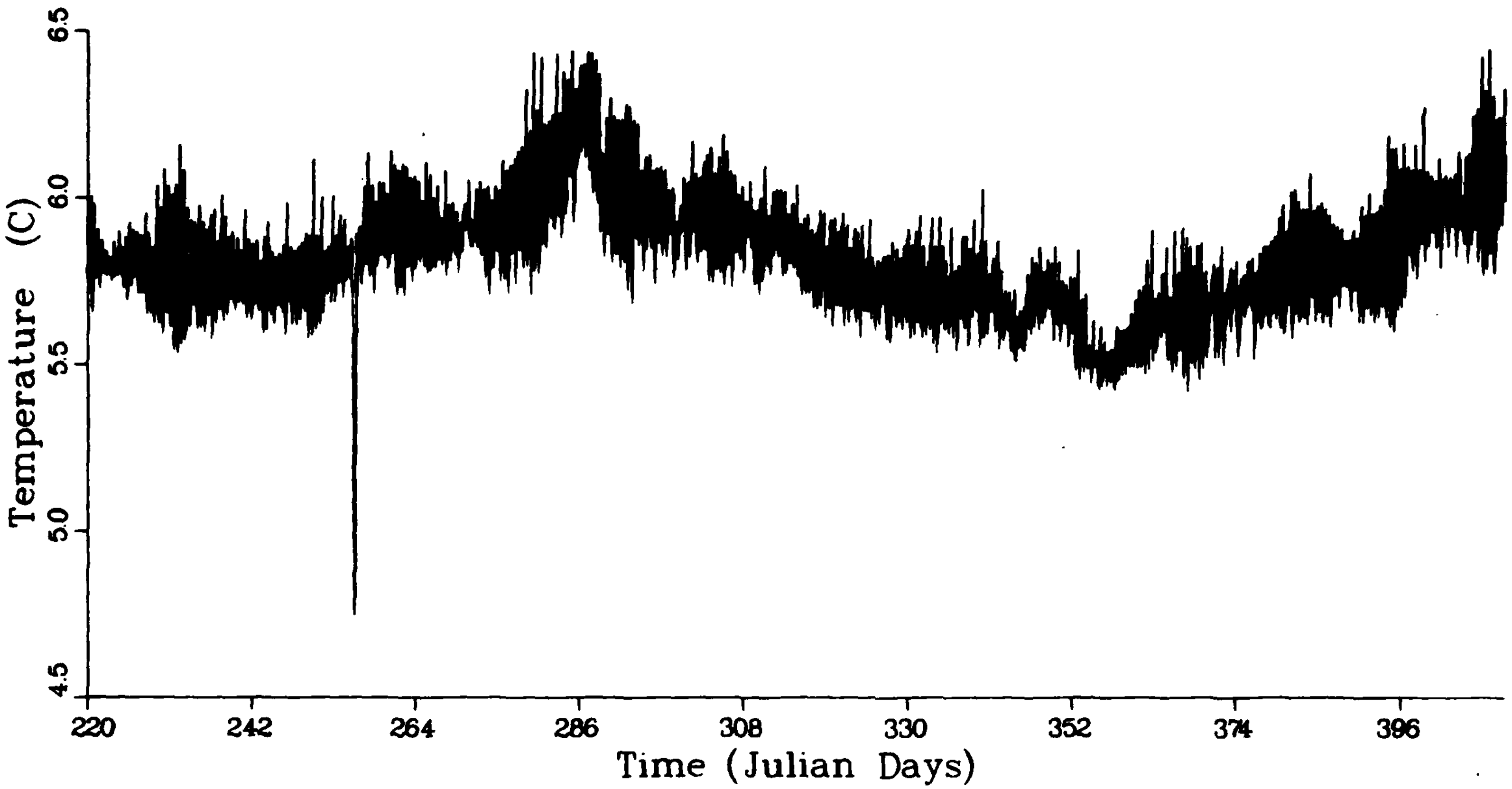
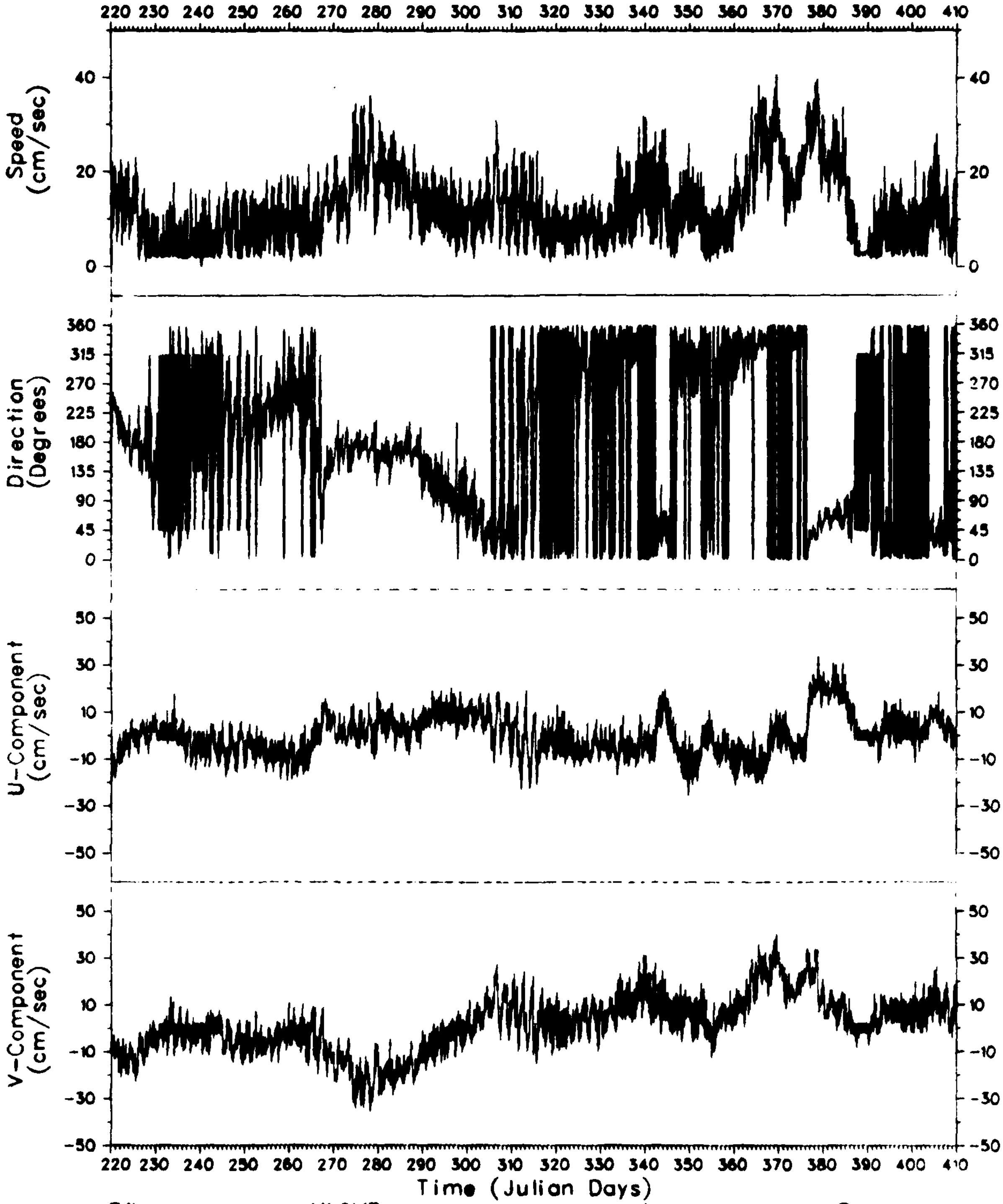


Figure 18. Meter 410 current time series



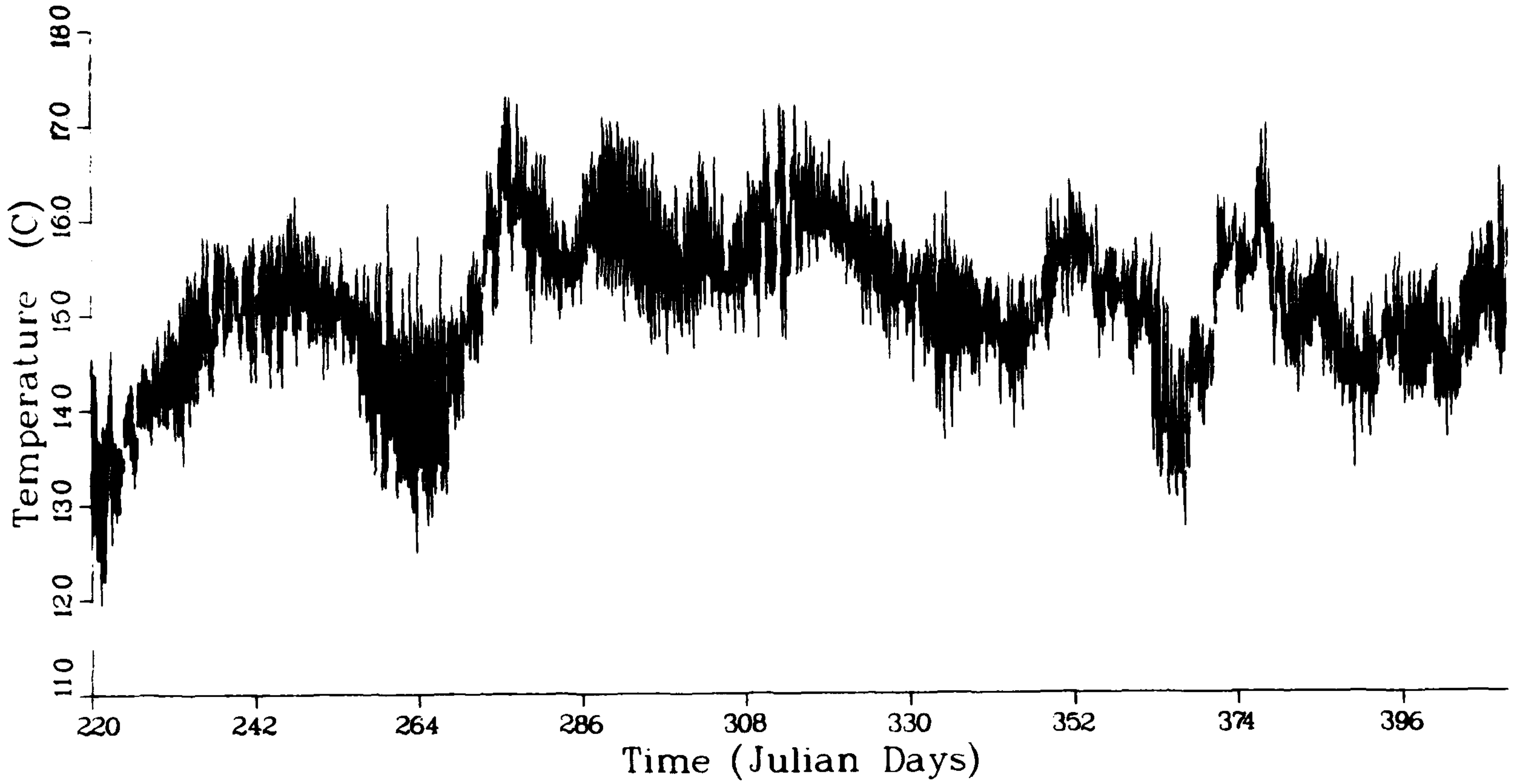
File :	VACMF	Array .	C
Meter :	410	Depth :	750
Latitude :	13.08230	Start :	07 AUG 1978
Longitude:	61.99000	End :	14 FEB 1979

Figure 19. Meter 410 temperature time series



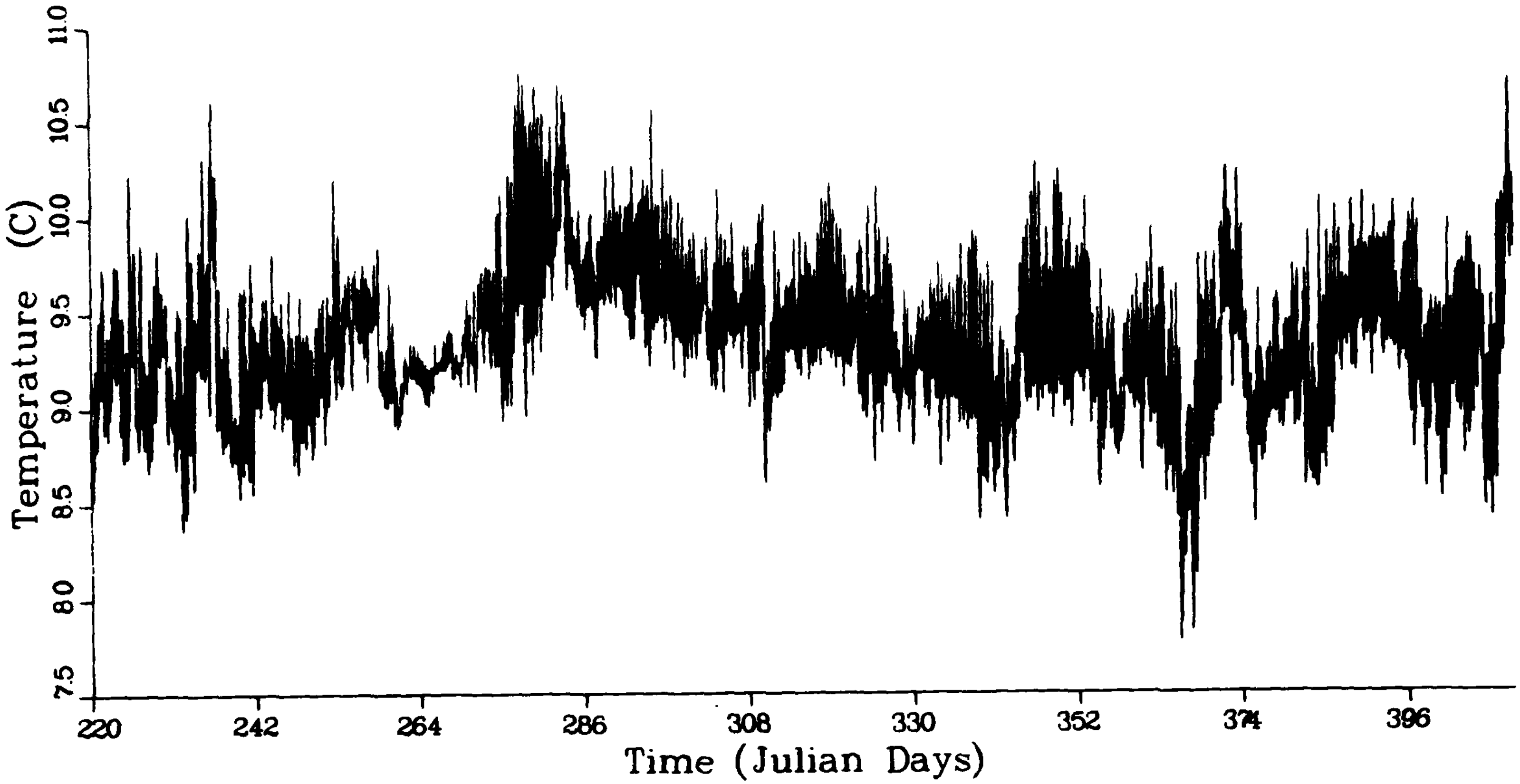
File :	VACMF	Array :	D
Meter :	289	Depth :	150
Latitude :	12.33000	Start :	08 AUG 1978
Longitude :	63.03000	End :	14 FEB 1979

Figure 20. Meter 289 current time series



File	VACMF	Array	D
Meter	289	Depth	150
Latitude	12.33000	Start	08 AUG 1978
Longitude	63.03000	End	14 FEB 1979

Figure 21. Meter 289 temperature time series



File :	VACMF	Array	D
Meter :	216	Depth :	350
Latitude :	12.33000	Start :	08 AUG 1978
Longitude:	63.03000	End :	14 FEB 1979

Figure 22. Meter 216 temperature time series

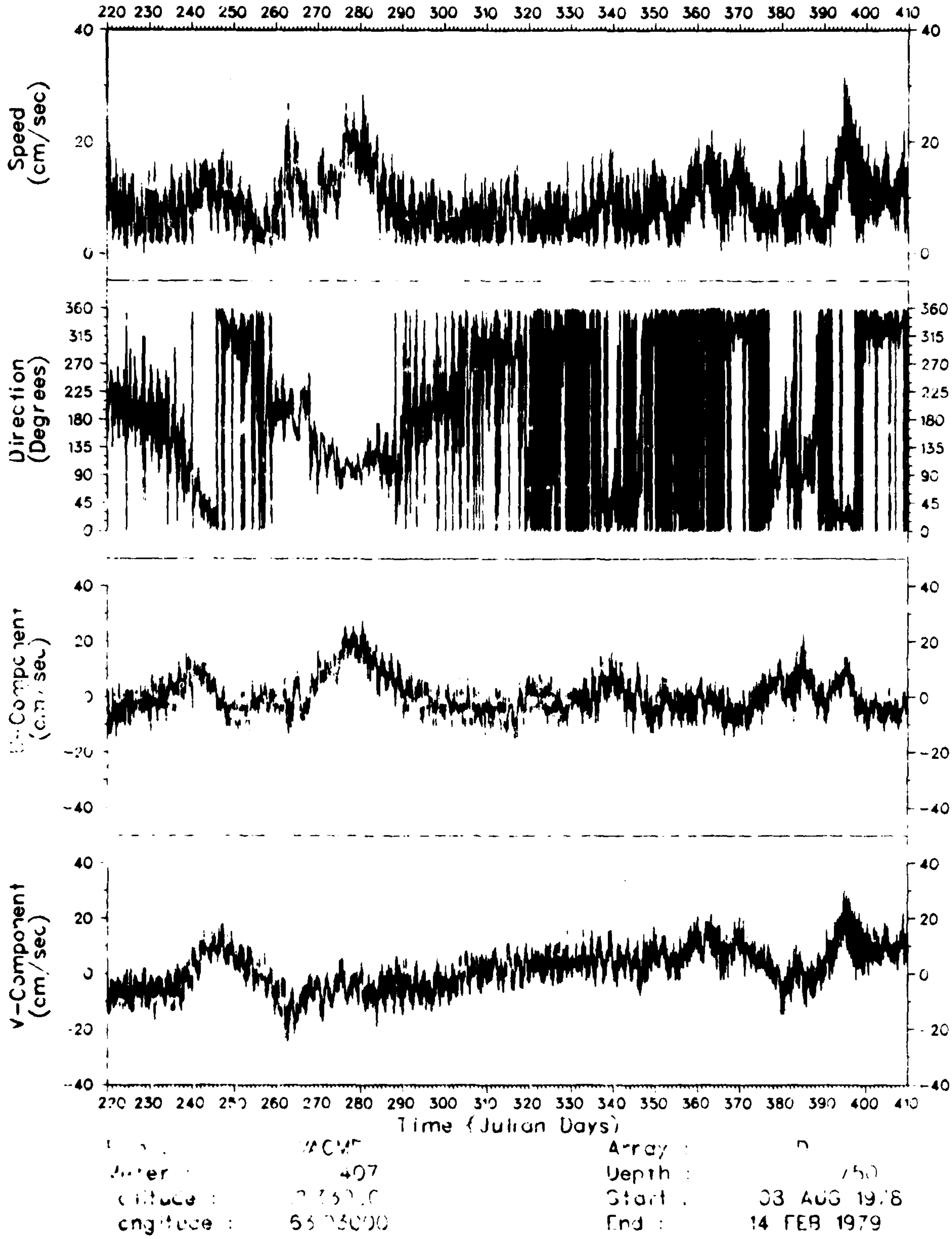
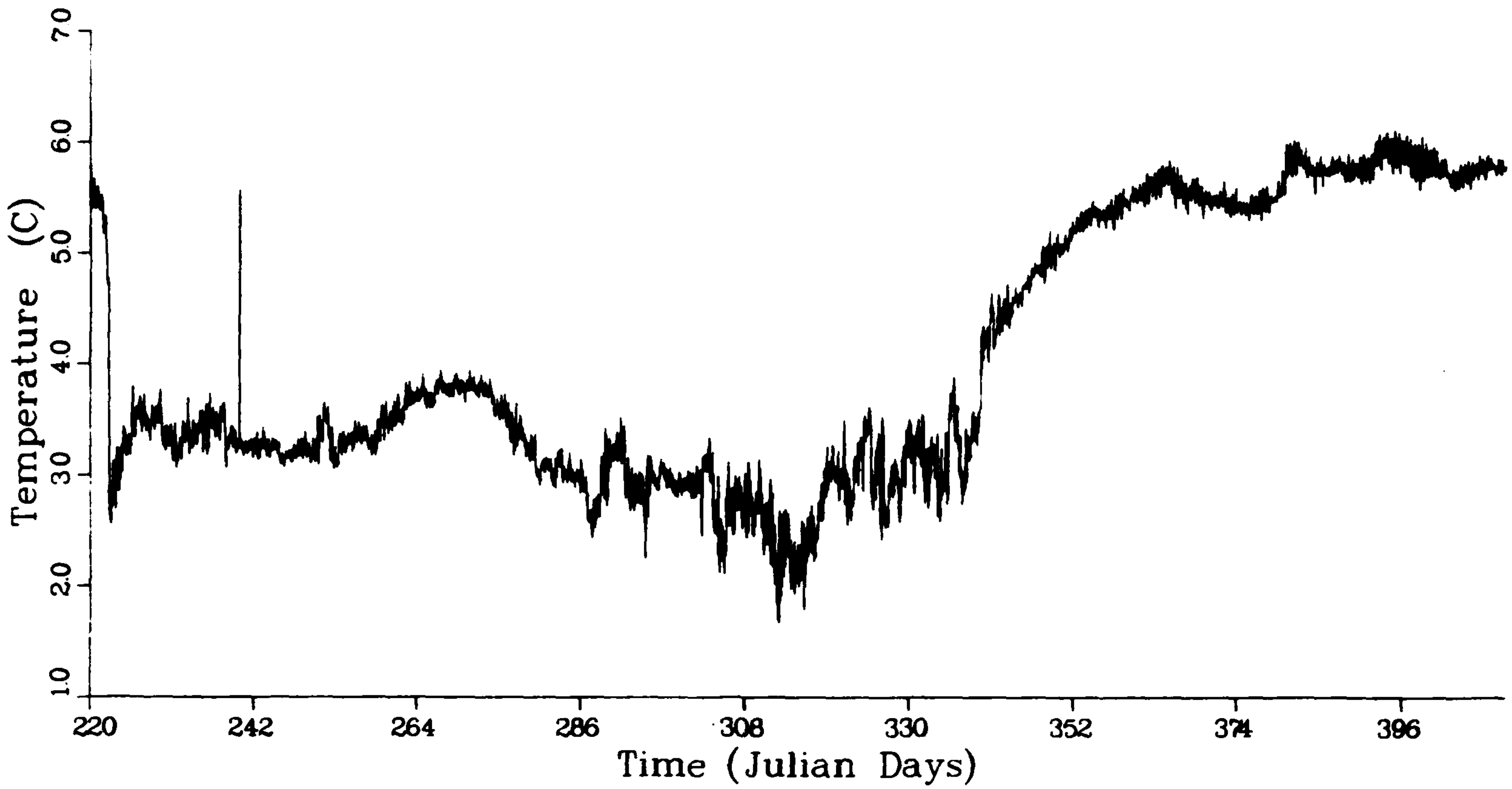
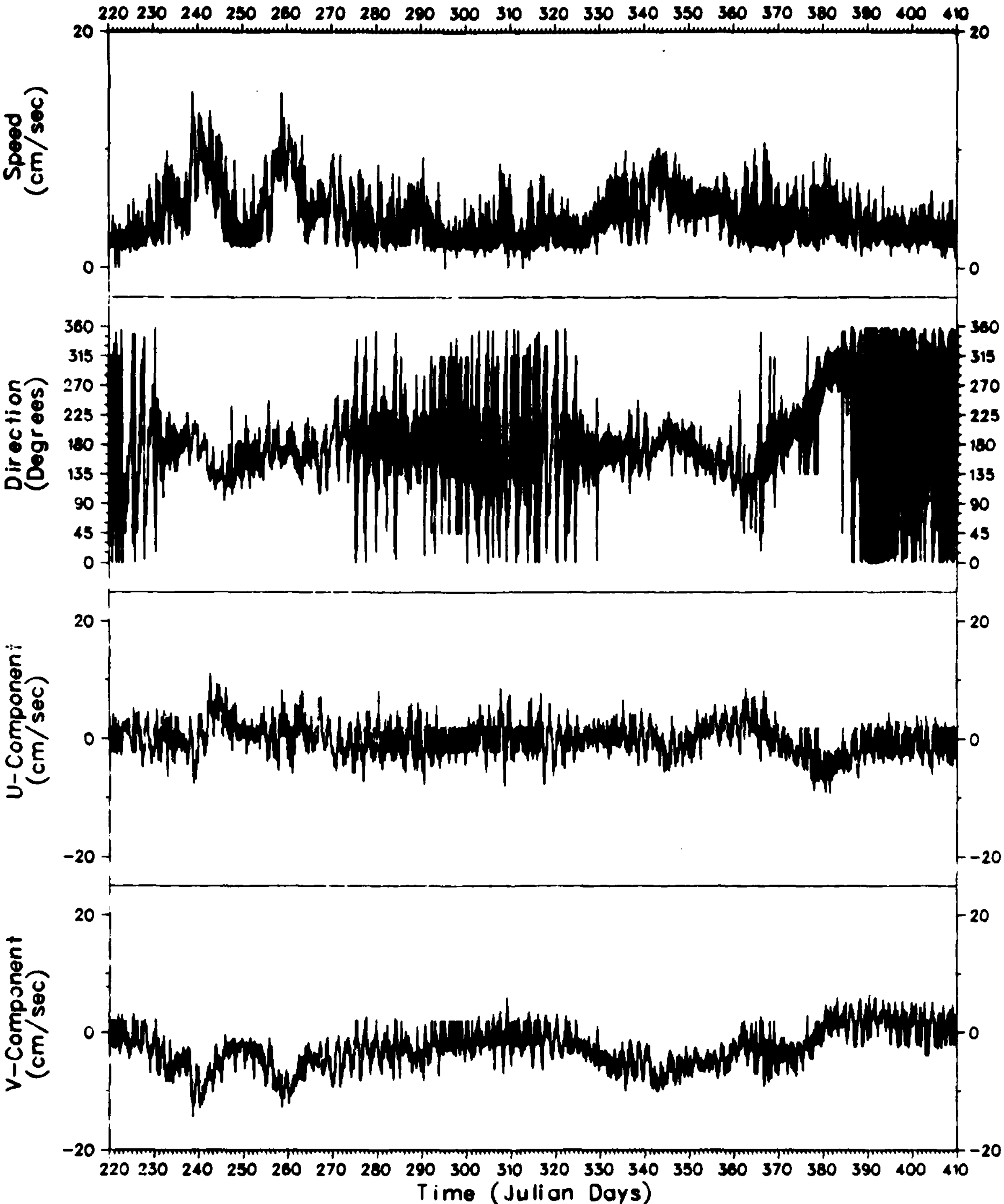


Figure 23. Meter 407 current time series



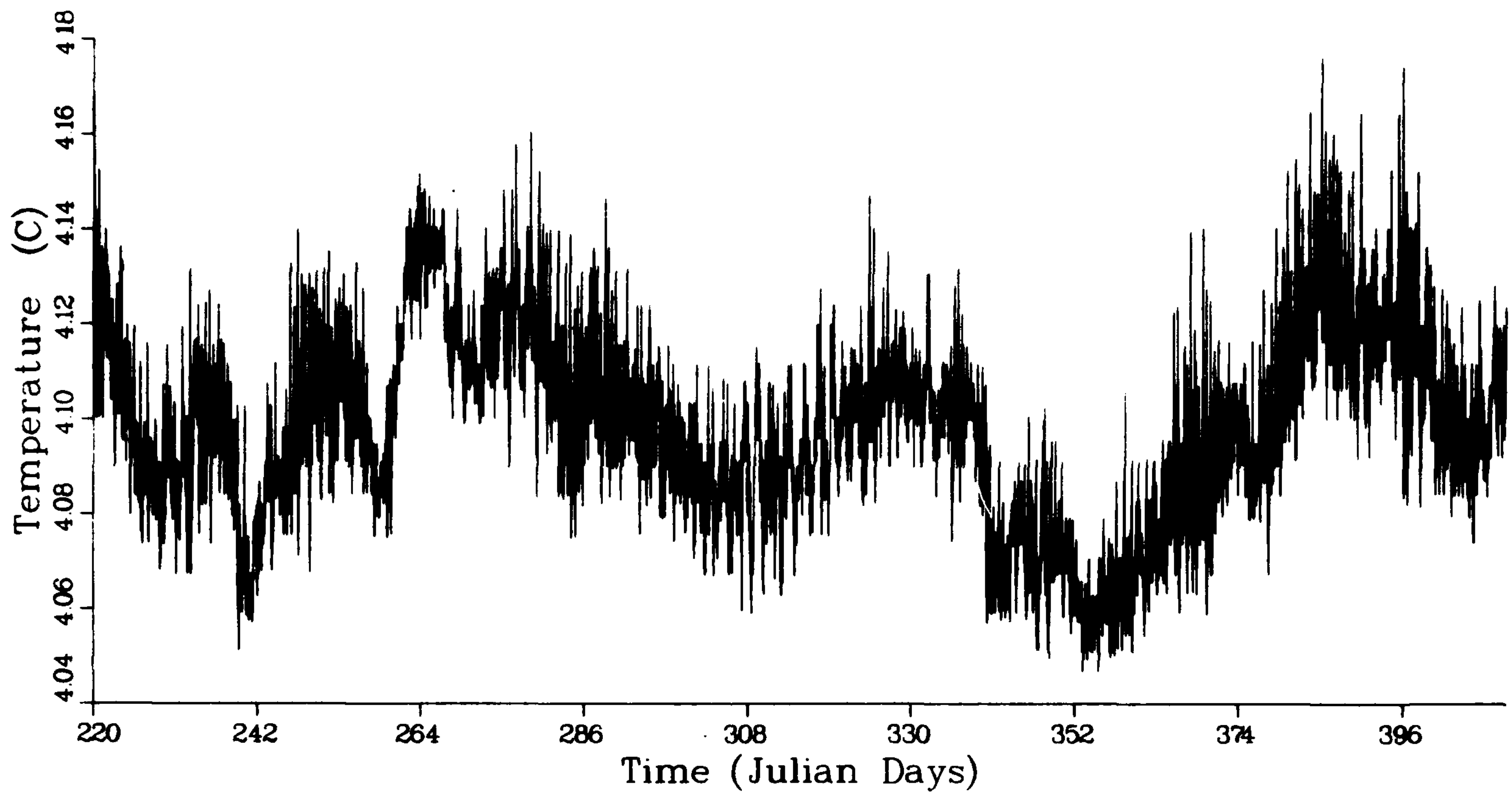
File :	VACMF	Array	D
Meter :	407	Depth :	750
Latitude :	12.33000	Start :	08 AUG 1978
Longitude:	63.03000	End :	14 FEB 1979

Figure 24. Meter 407 temperature time series



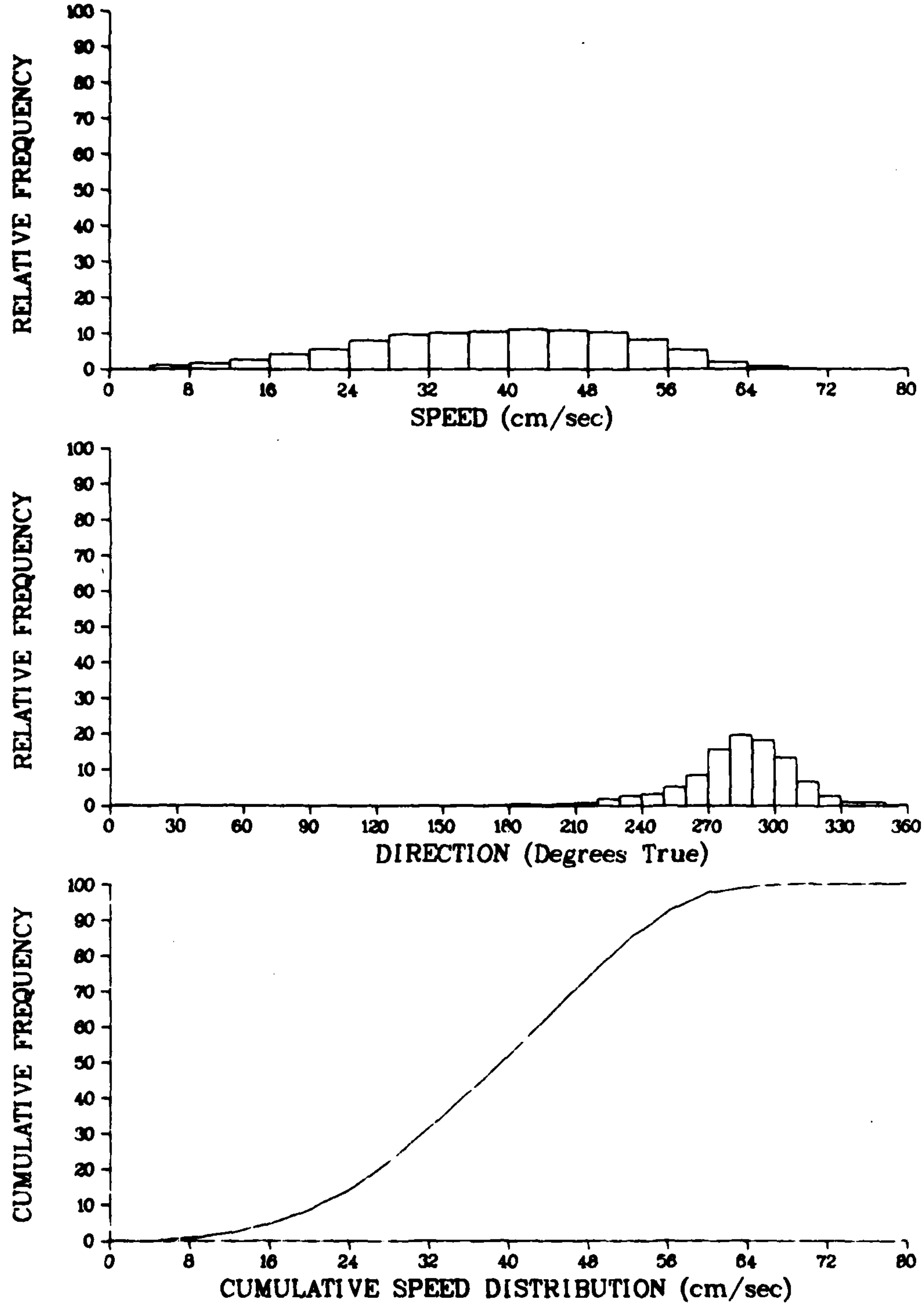
File :	VACMF	Array :	D
Meter :	414	Depth :	1500
Latitude :	12.33000	Start :	08 AUG 1978
Longitude :	63.03000	End :	14 FEB 1979

Figure 25. Meter 414 current time series



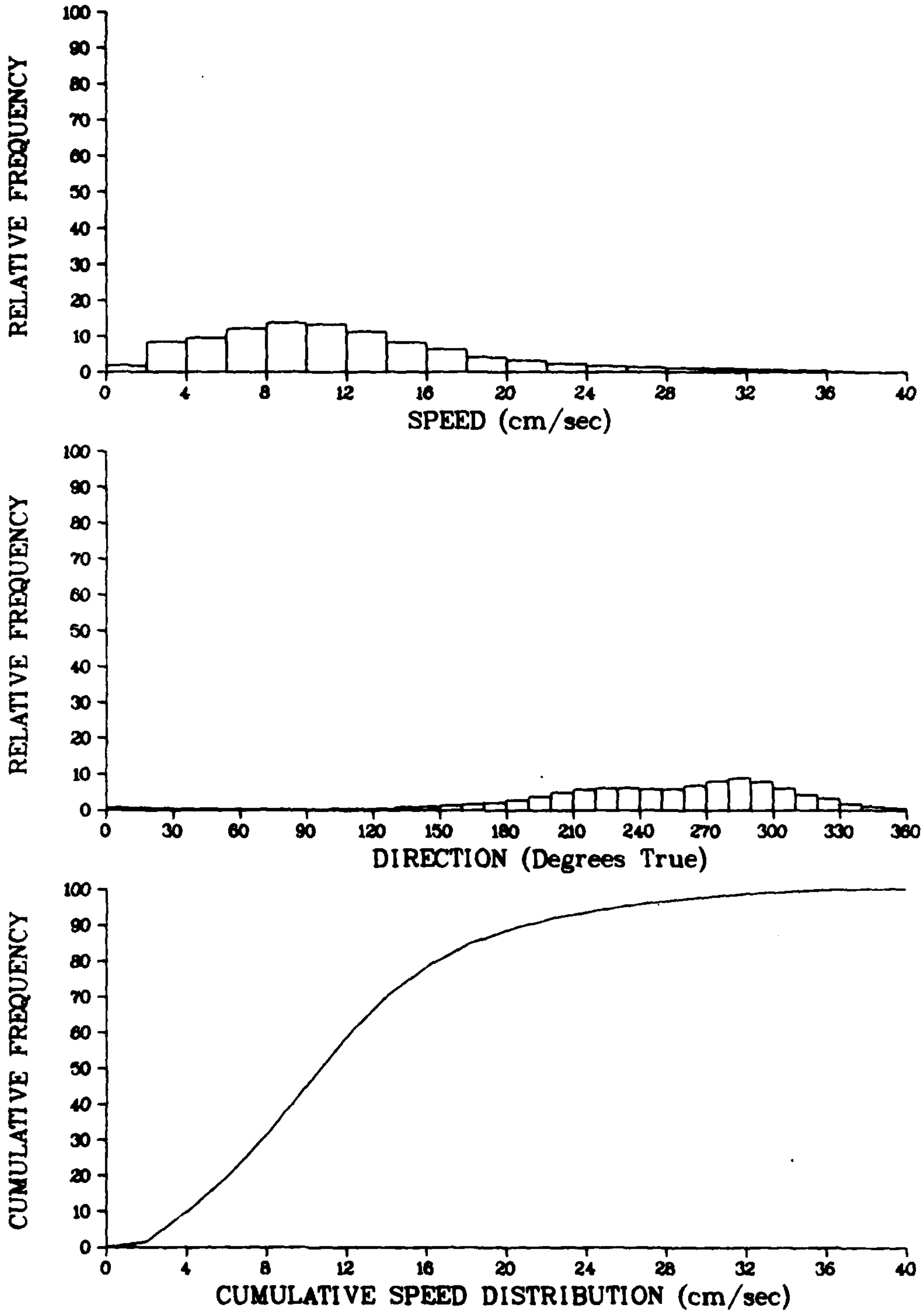
File :	VACMF	Array :	D
Meter :	414	Depth :	1500
Latitude :	12.33000	Start :	08 AUG 1978
Longitude:	63.03000	End :	14 FEB 1979

Figure 26. Meter 414 temperature time series



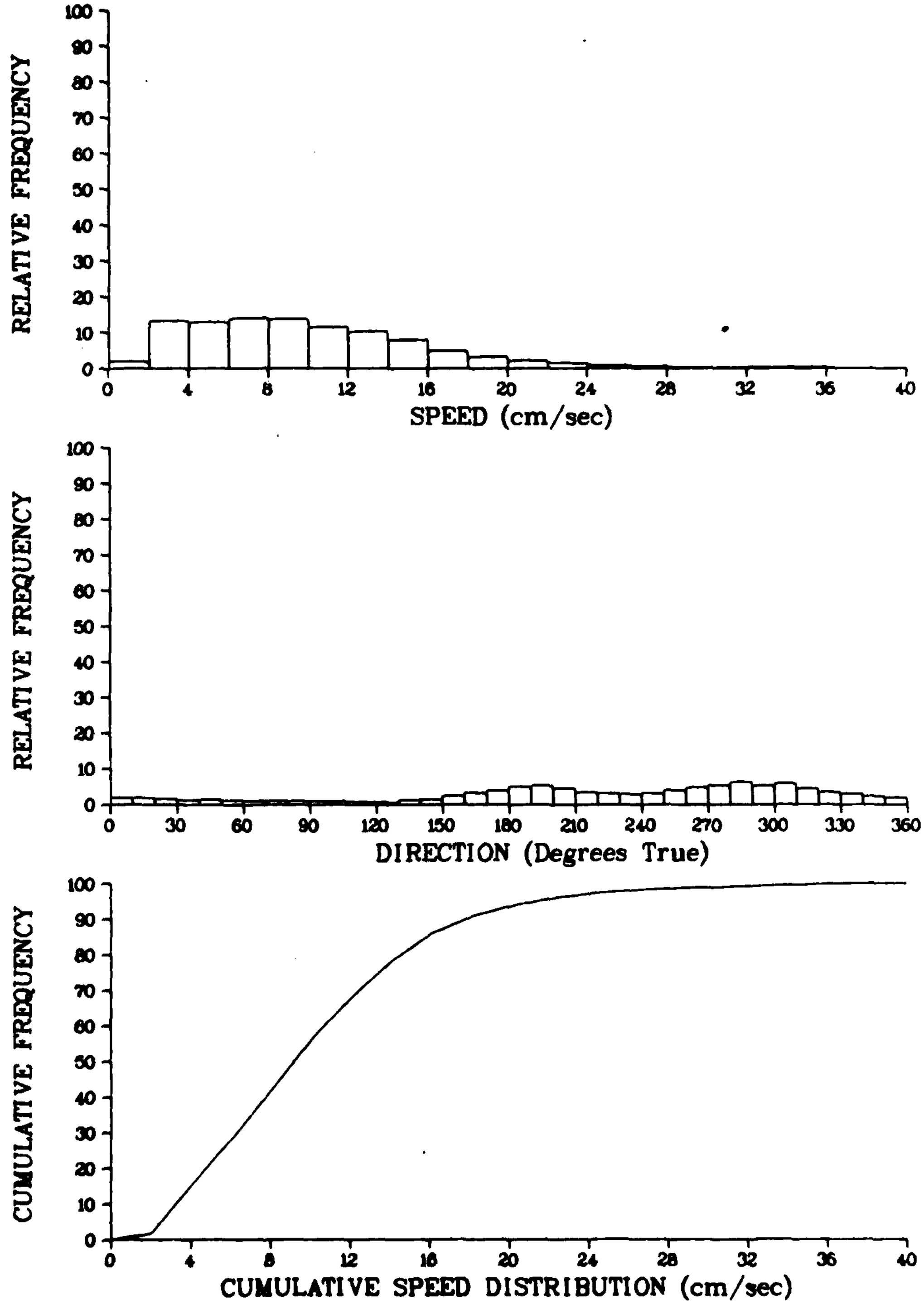
File :	VACMF	Array :	A
Meter :	406	Depth :	193
Latitude :	14.17300	Start :	06 AUG 1978
Longitude :	62.54450	End :	21 SEP 1978

Figure 27. Meter 406 speed and direction histograms



File :	VACMF	Array :	A
Meter :	416	Depth :	393
Latitude :	14.17300	Start :	06 AUG 1978
Longitude :	62.54450	End :	30 NOV 1978

Figure 28. Meter 416 speed and direction histograms



File	VACMF	Array	A
Meter	412	Depth	793
Latitude	14.17300	Start	06 AUG 1978
Longitude	62.54450	End	28 FEB 1979

Figure 29. Meter 412 speed and direction histograms

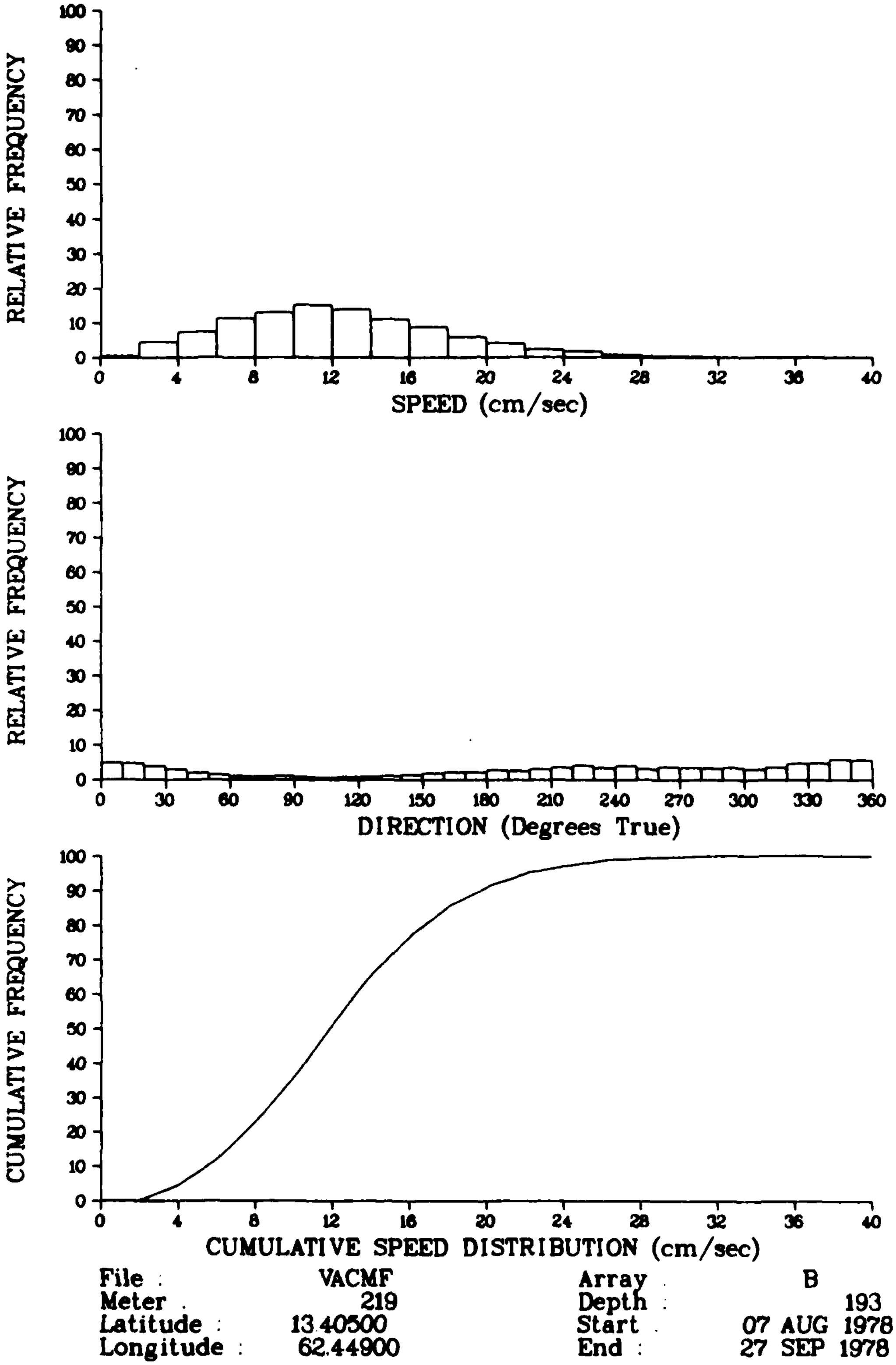


Figure 30. Meter 219 speed and direction histograms

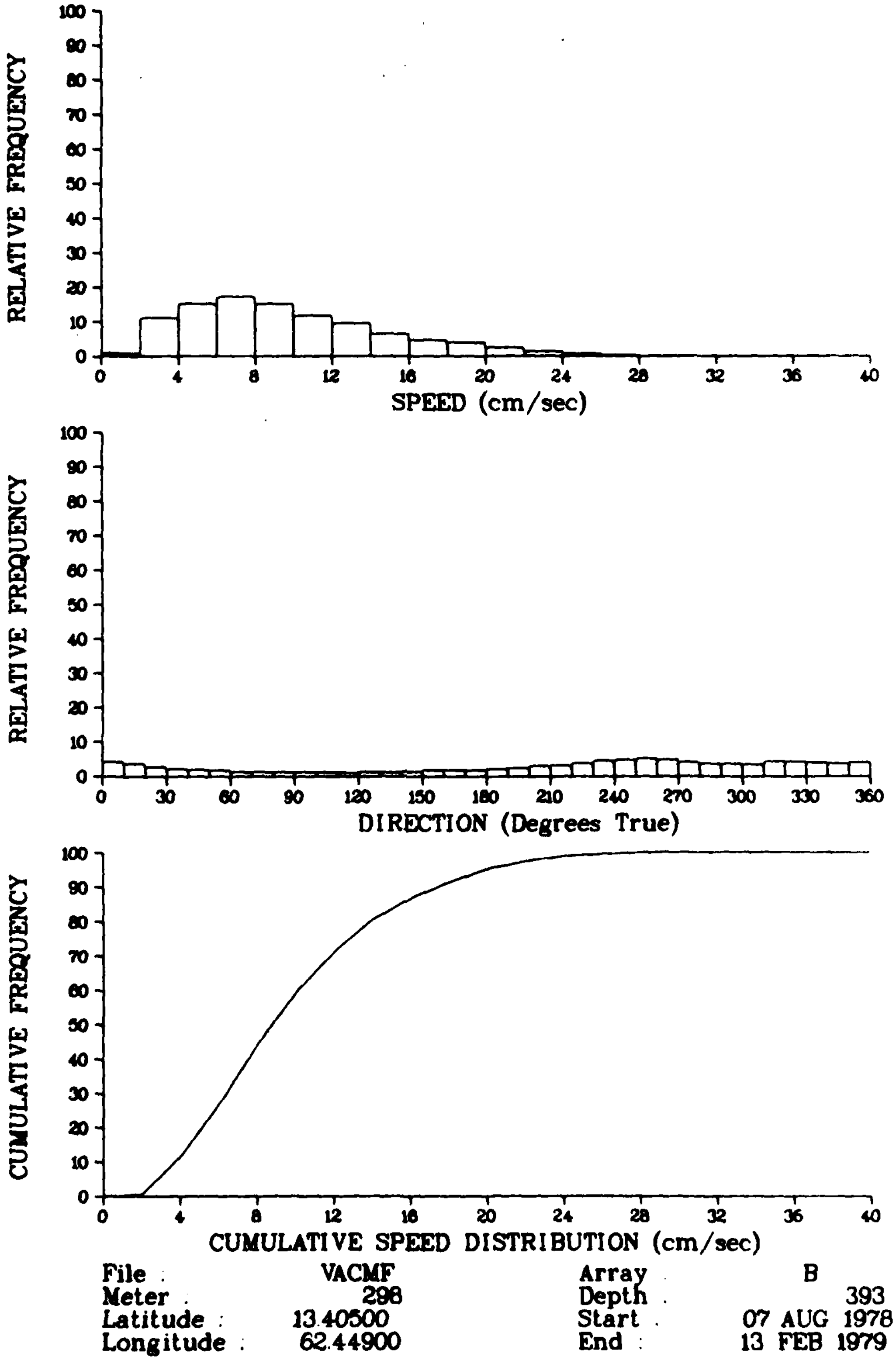
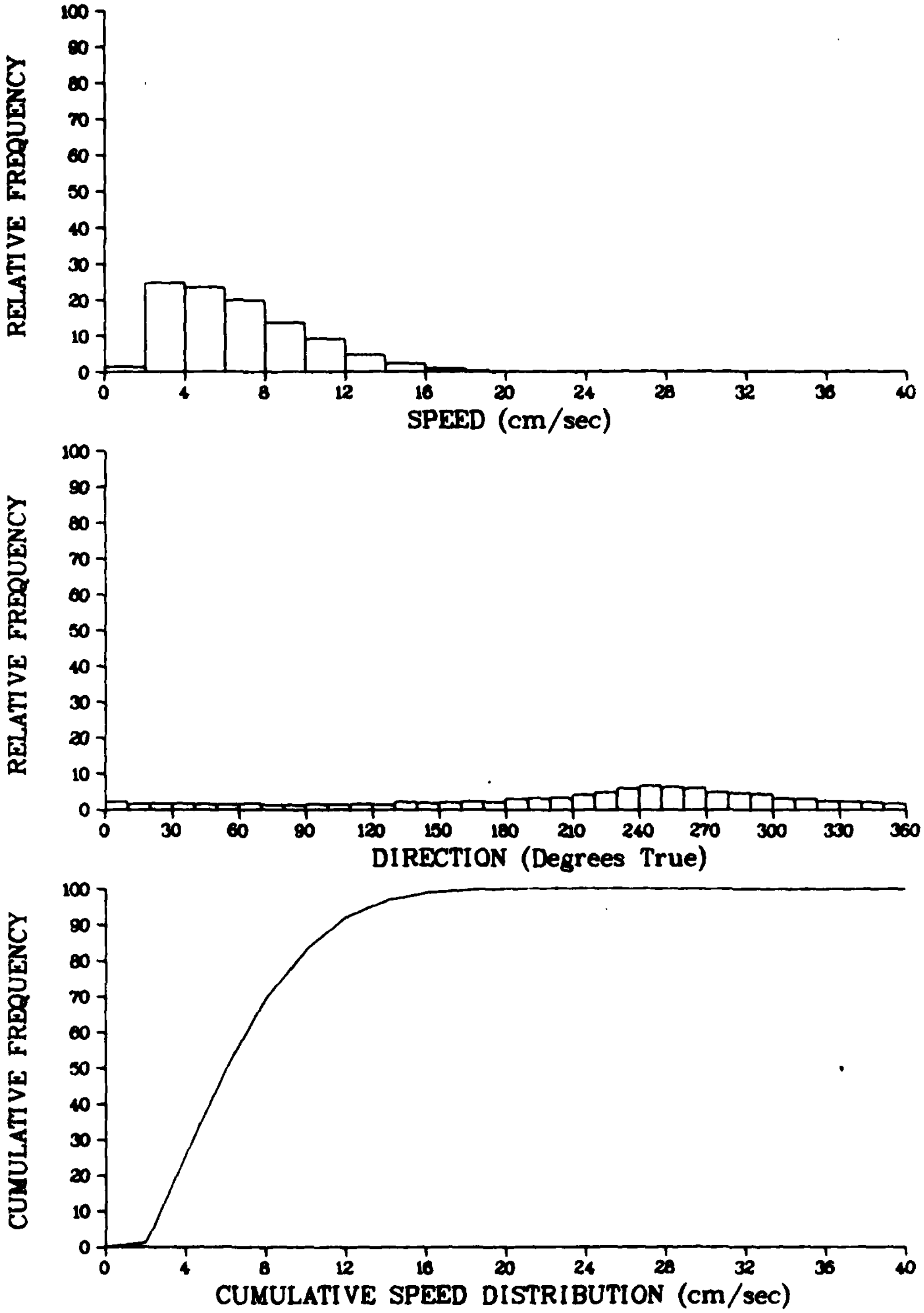
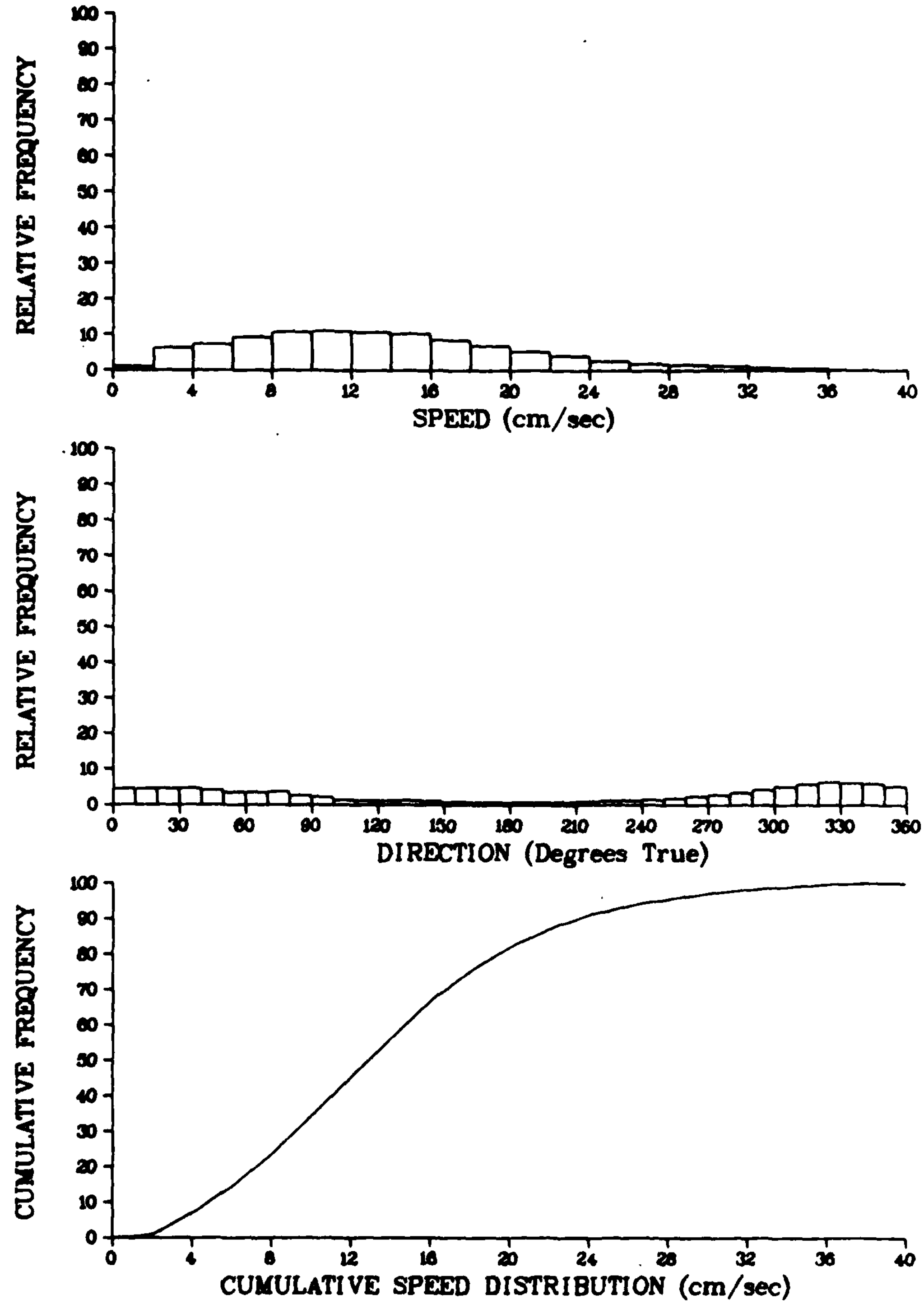


Figure 31. Meter 298 speed and direction histograms



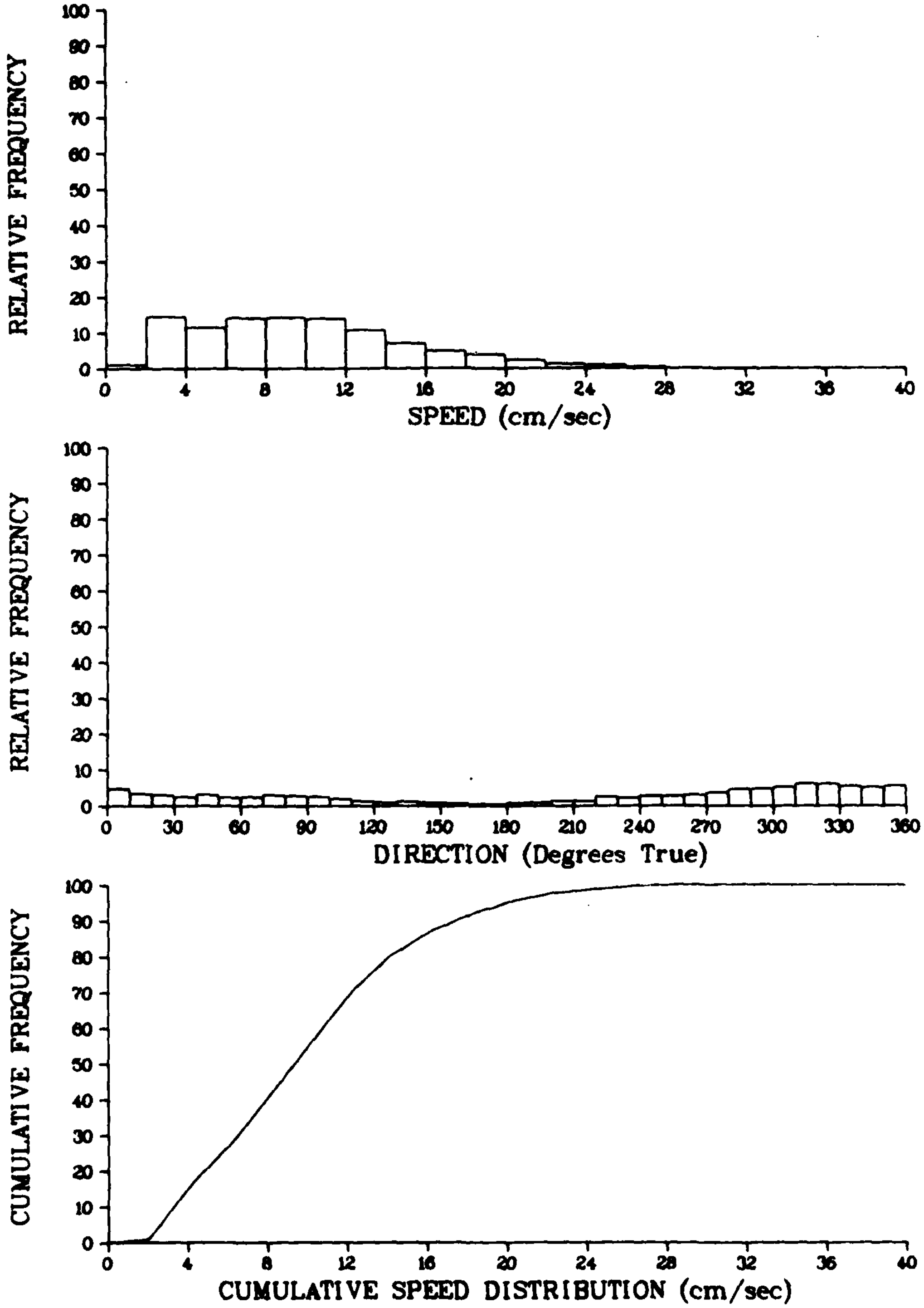
File :	VACMF	Array :	B
Meter :	417	Depth :	793
Latitude :	13.40500	Start :	07 AUG 1978
Longitude :	62.44900	End :	13 FEB 1979

Figure 32. Meter 417 speed and direction histograms



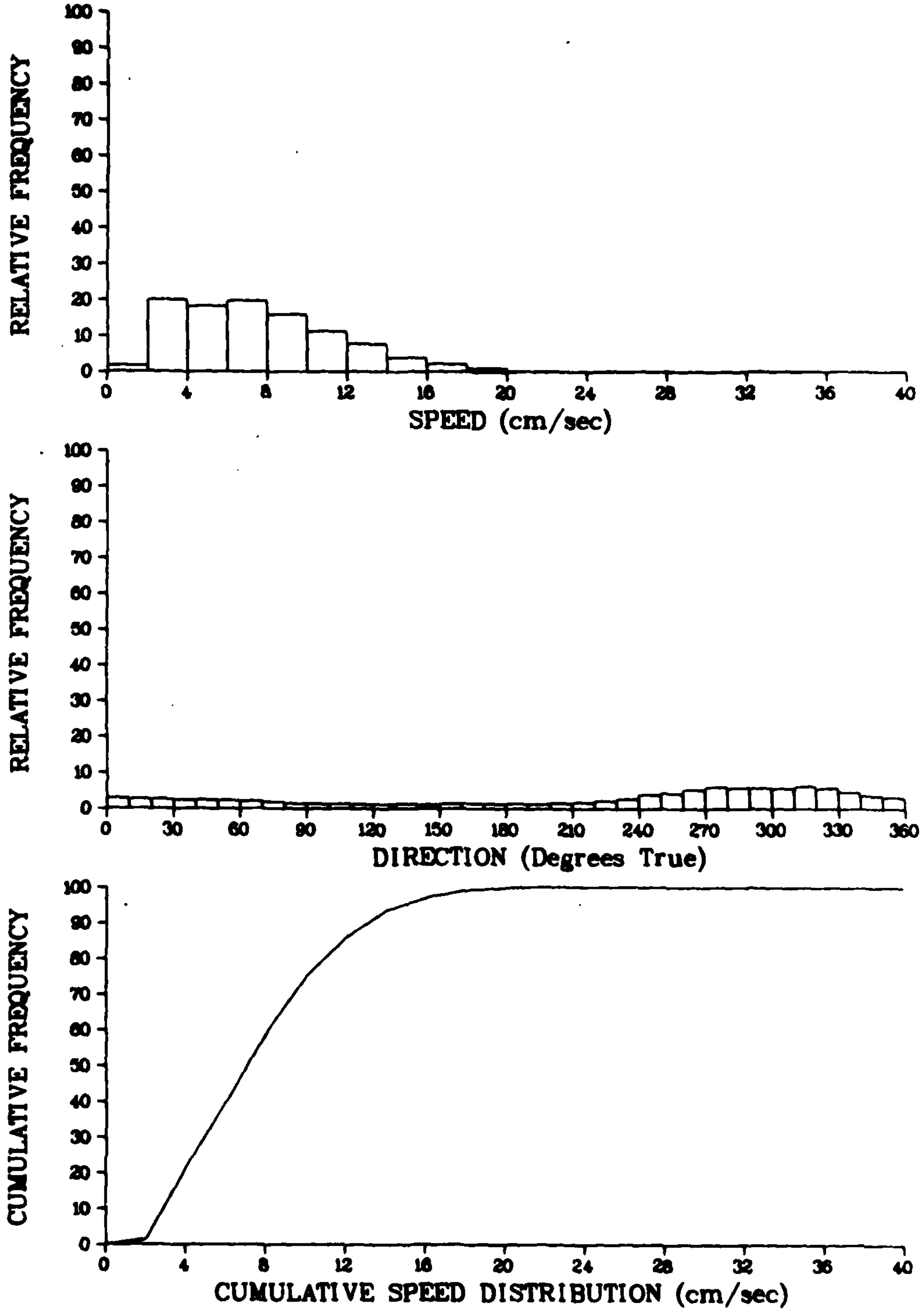
File :	VACMF	Array :	C
Meter :	300	Depth :	150
Latitude :	13.08230	Start :	07 AUG 1978
Longitude :	61.99000	End :	14 FEB 1979

Figure 33. Meter 300 speed and direction histograms



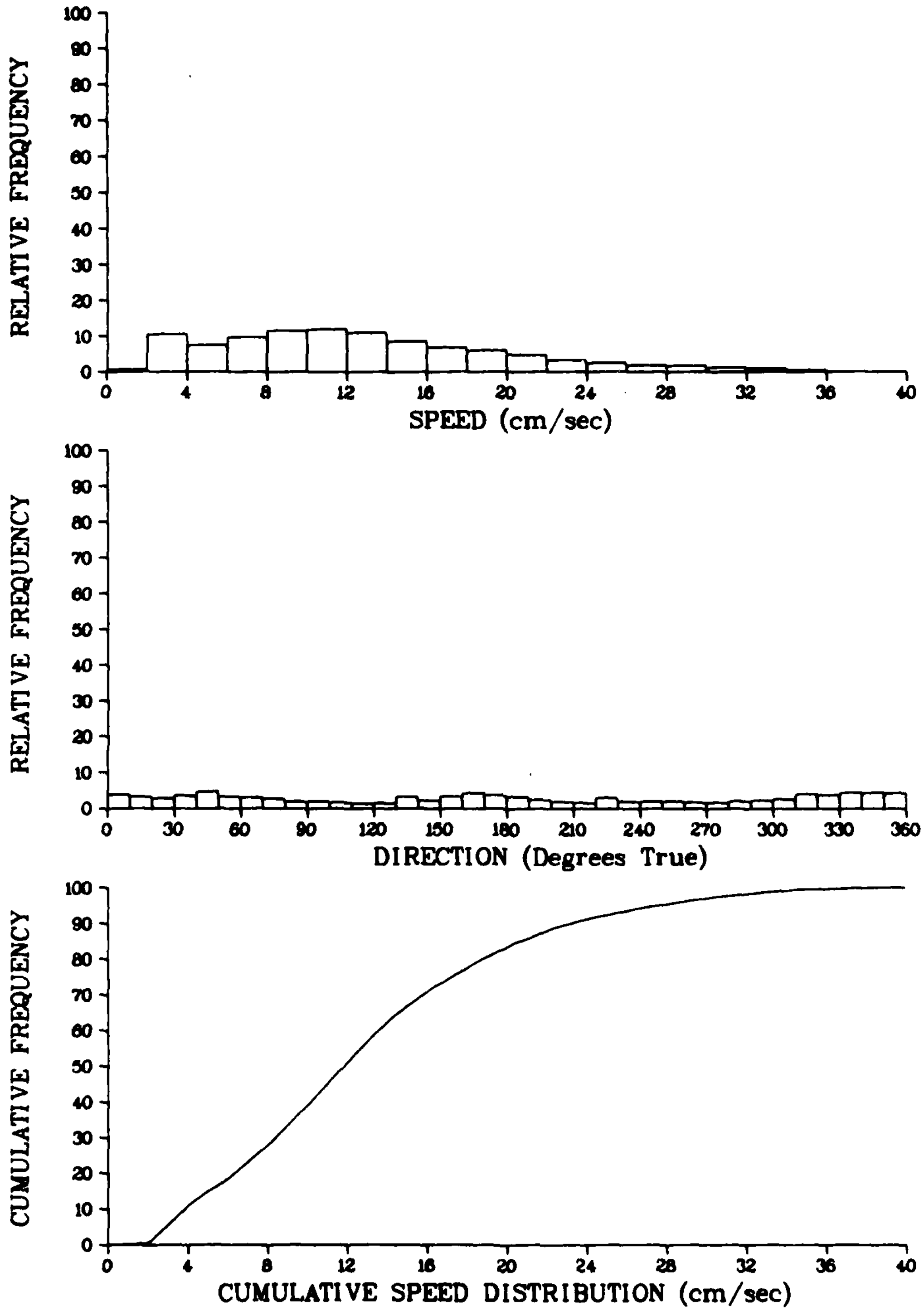
File :	VACMF	Array	C
Meter :	296	Depth :	350
Latitude :	13.08230	Start :	07 AUG 1978
Longitude :	61.99000	End :	23 NOV 1978

Figure 34. Meter 296 speed and direction histograms



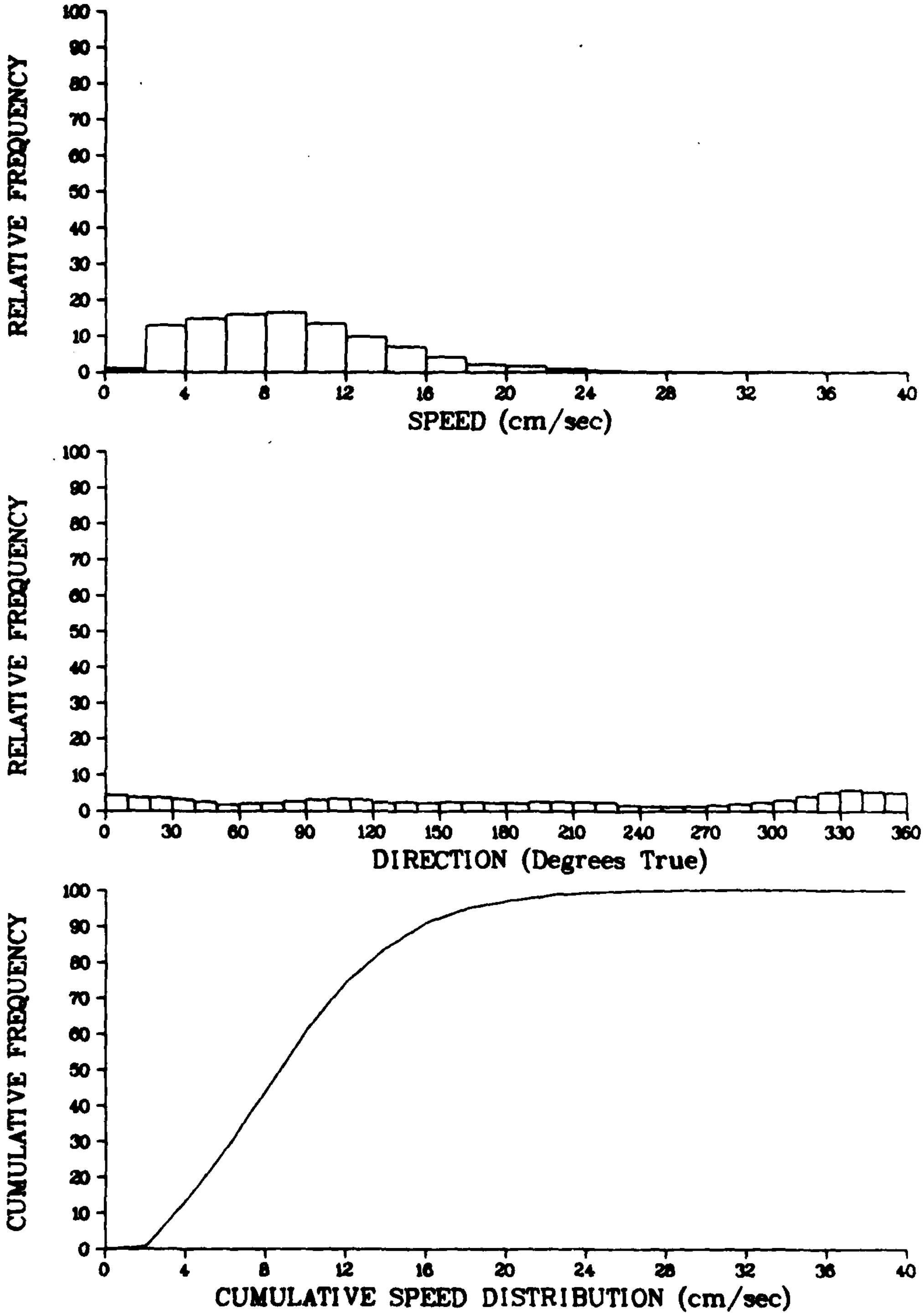
File :	VACMF	Array :	C
Meter :	410	Depth :	750
Latitude :	13.08230	Start :	07 AUG 1978
Longitude :	61.99000	End :	14 FEB 1979

Figure 35. Meter 410 speed and direction histograms



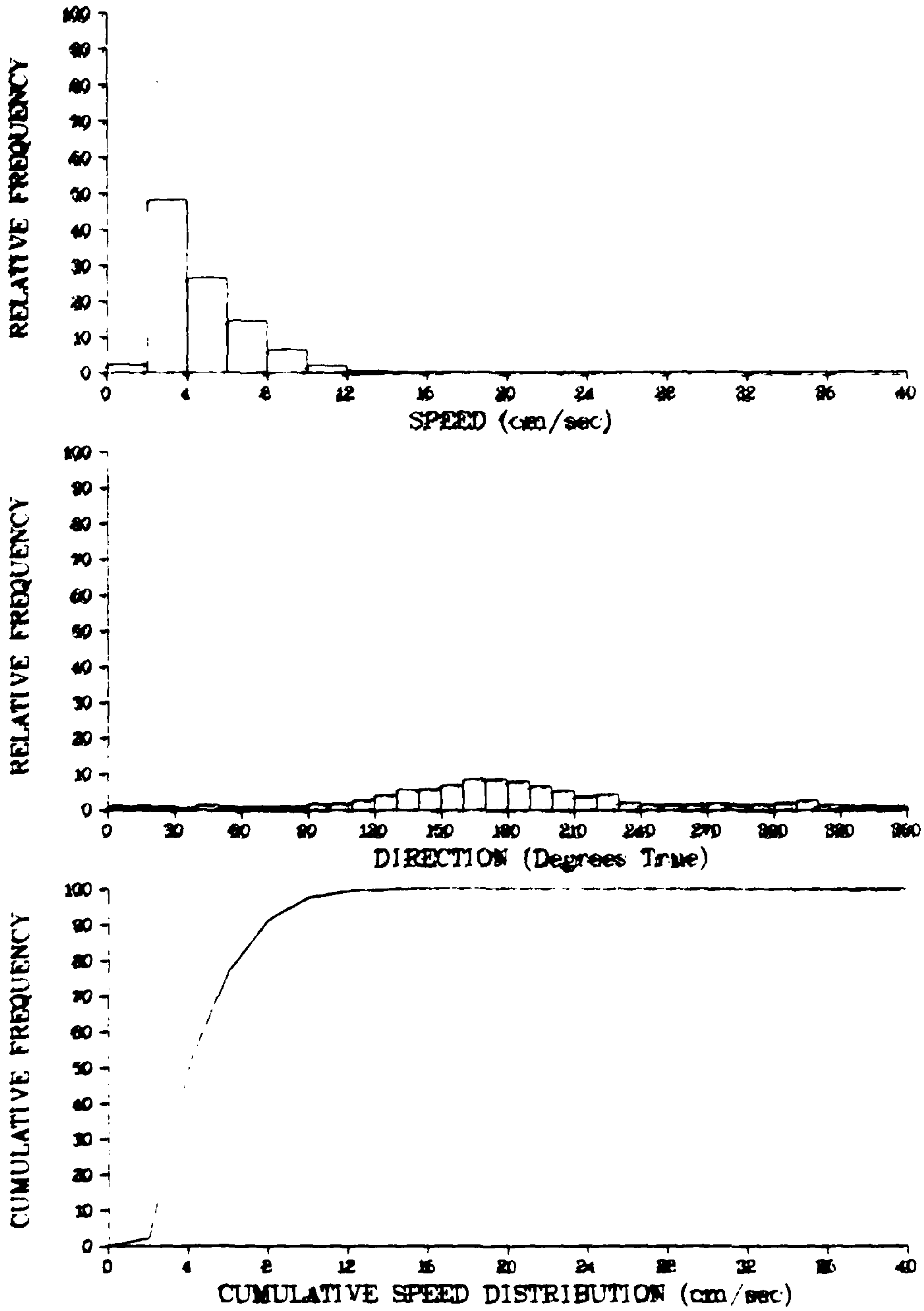
File :	VACMF	Array	D
Meter :	289	Depth :	150
Latitude :	12.33000	Start :	08 AUG 1978
Longitude :	63.03000	End :	14 FEB 1979

Figure 36. Meter 289 speed and direction histograms



File :	VACMF	Array :	D
Meter :	407	Depth :	750
Latitude :	12.33000	Start :	08 AUG 1978
Longitude :	63.03000	End :	14 FEB 1979

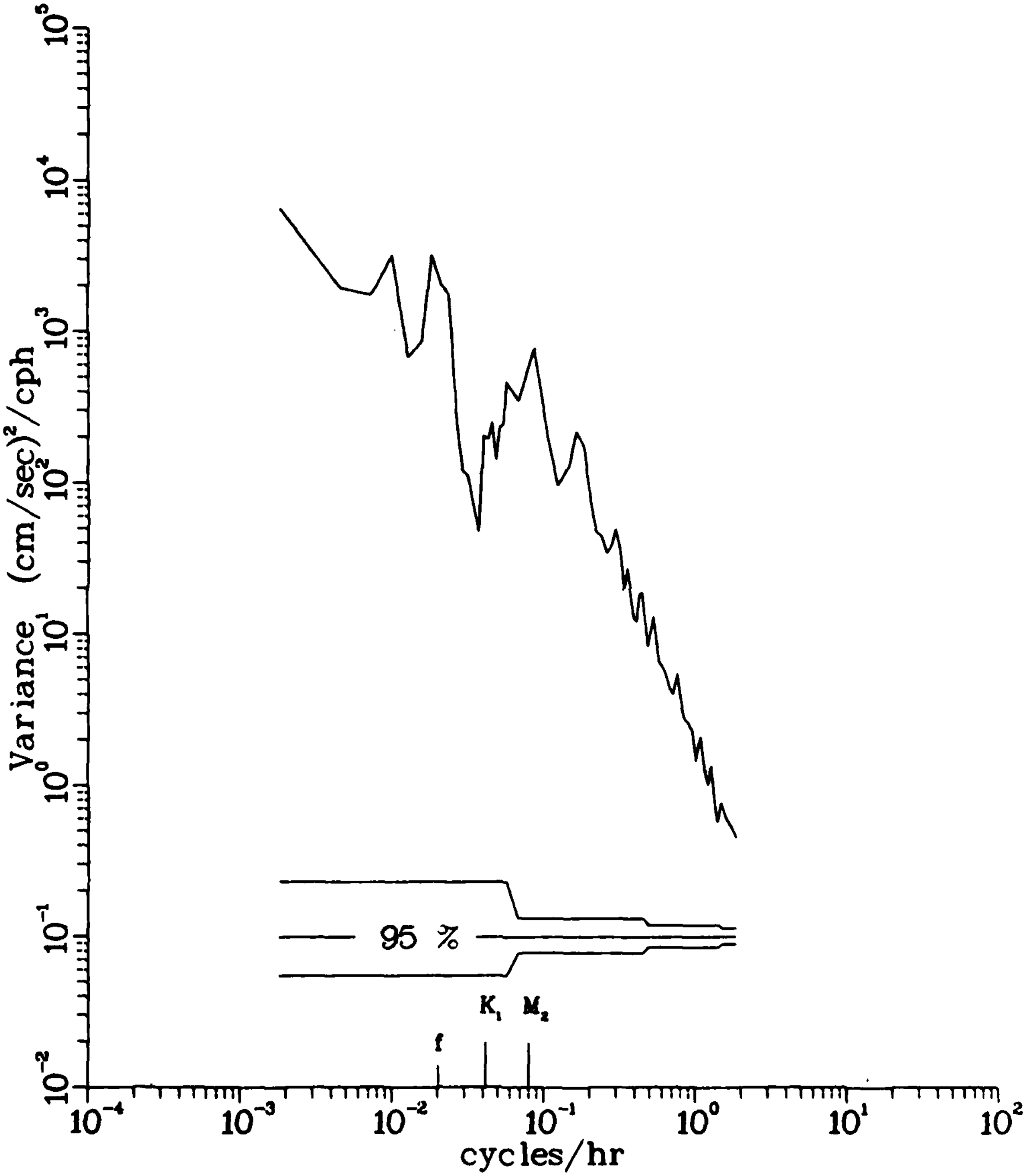
Figure 37. Meter 407 speed and direction histograms



File	VACMF	Array	D
Meter	414	Depth	1500
Latitude	12.33000	Start	08 AUG 1978
Longitude	63.03000	End	14 FEB 1979

Figure 38. Meter 414 speed and direction histograms

CURRENT SPECTRUM

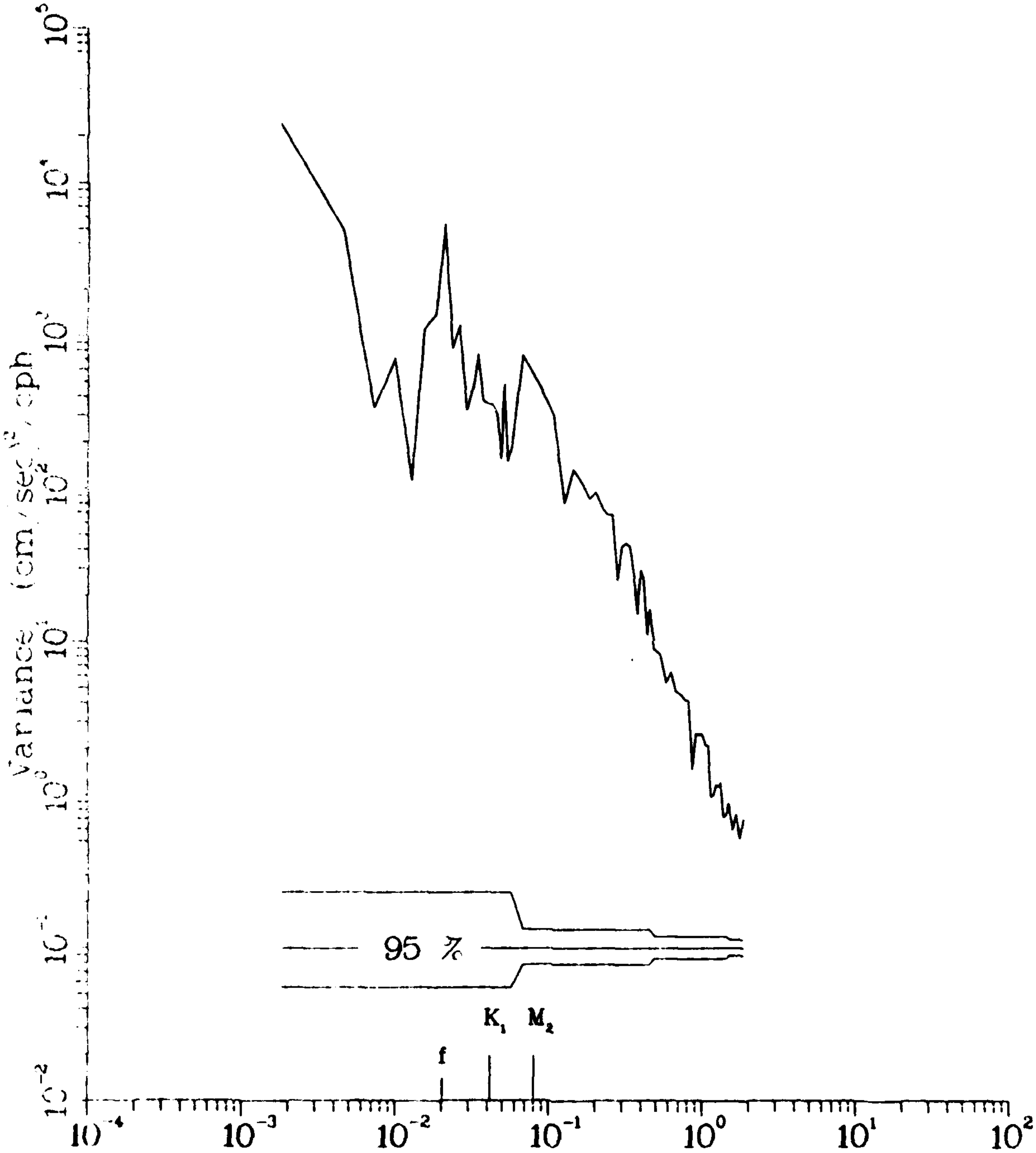


Variable : U
File : VACMF
Meter : 406
Lat. : 14.17300
Long : 62.54450

Array : A
Depth : 193
Start : 6 AUG 1978
End : 20 SEP 1978

Figure 39. Meter 406 east spectrum

CURRENT SPECTRUM



Variable	V	Array	A
File	VACMF	Depth	193
Meter	406	Start	6 AUG 1978
Lat.	14.17300	End	20 SEP 1978
Long	62.54450		

Figure 40. Meter 406 north spectrum

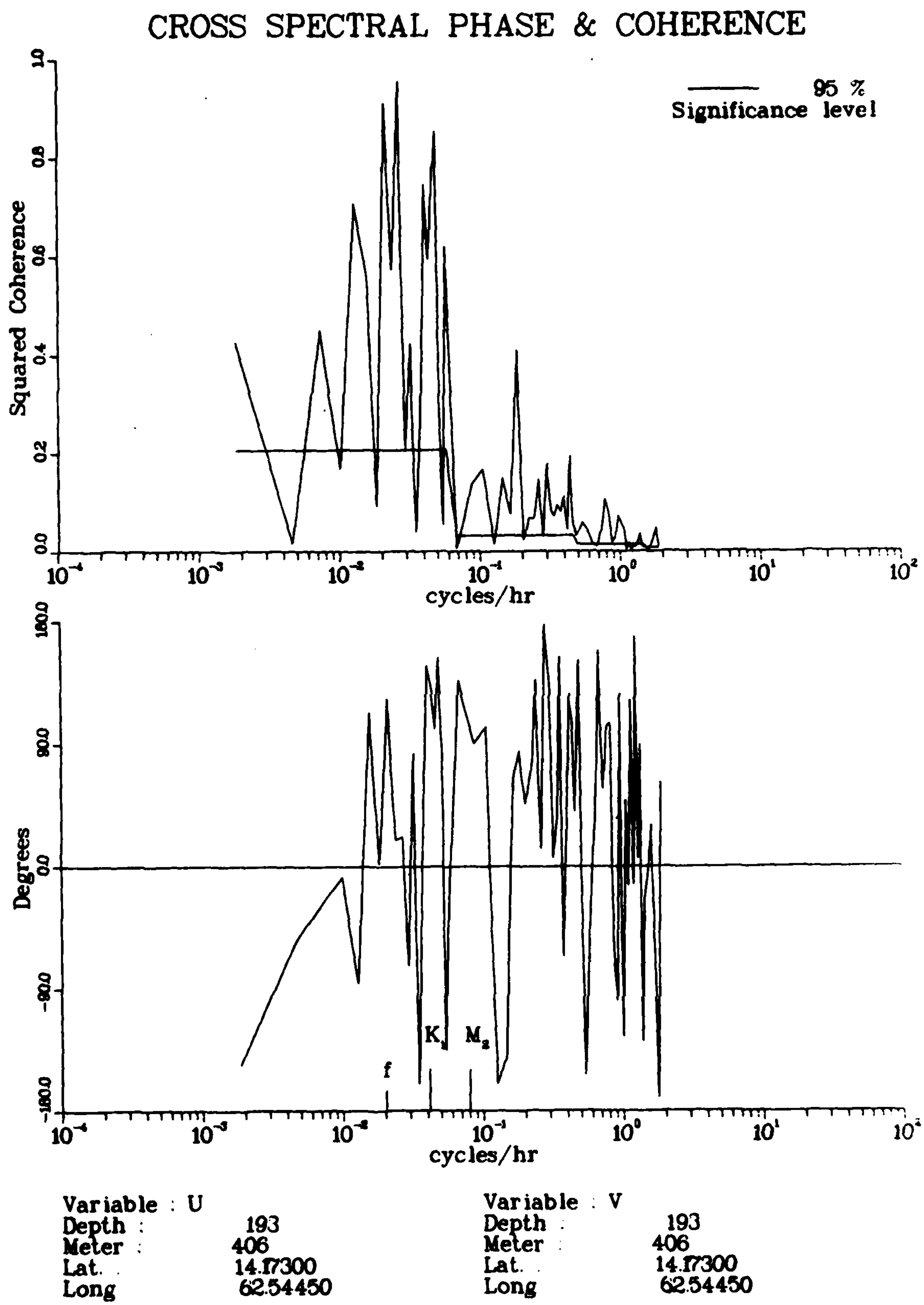
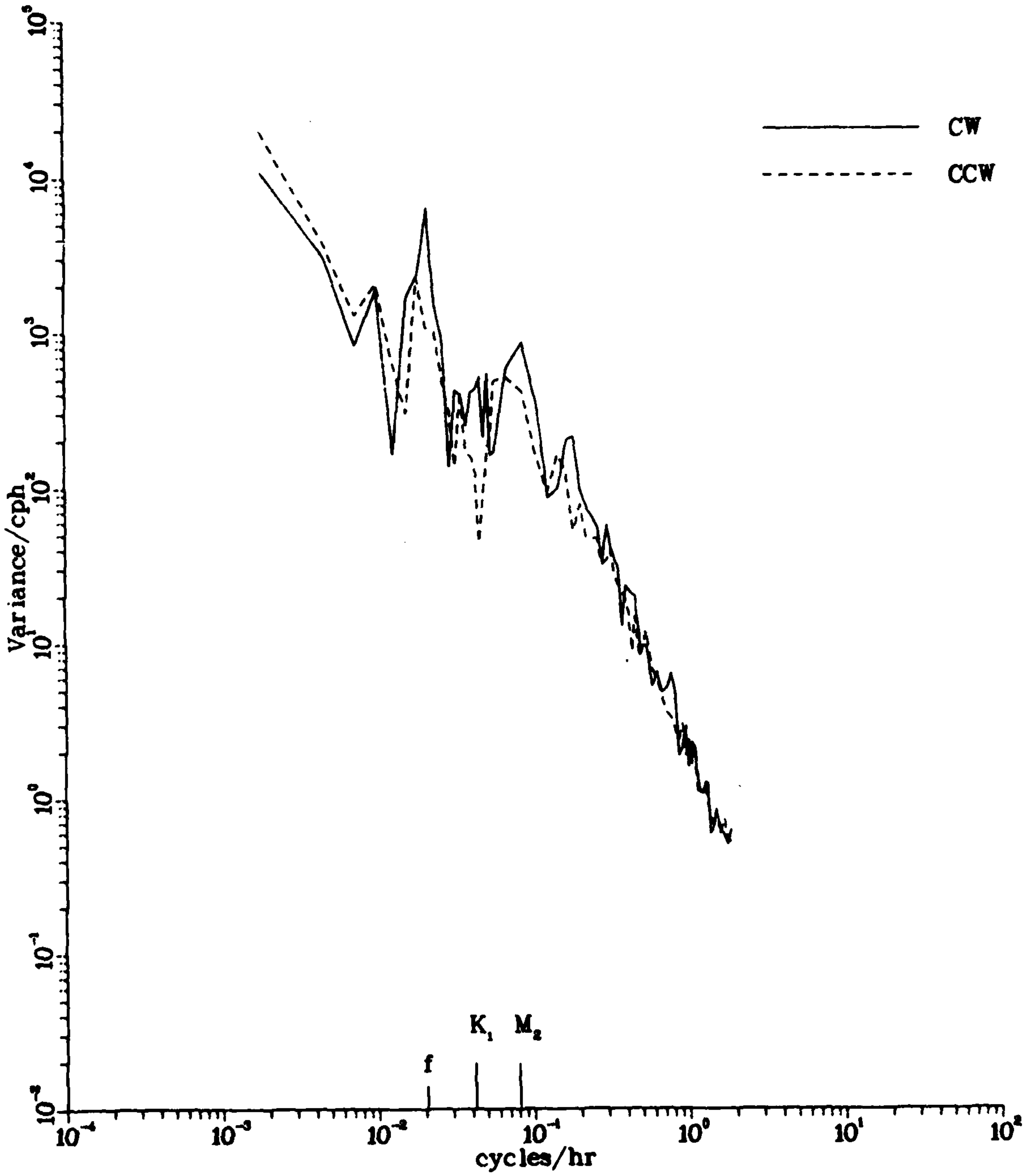


Figure 41. Meter 406 east-north coherence

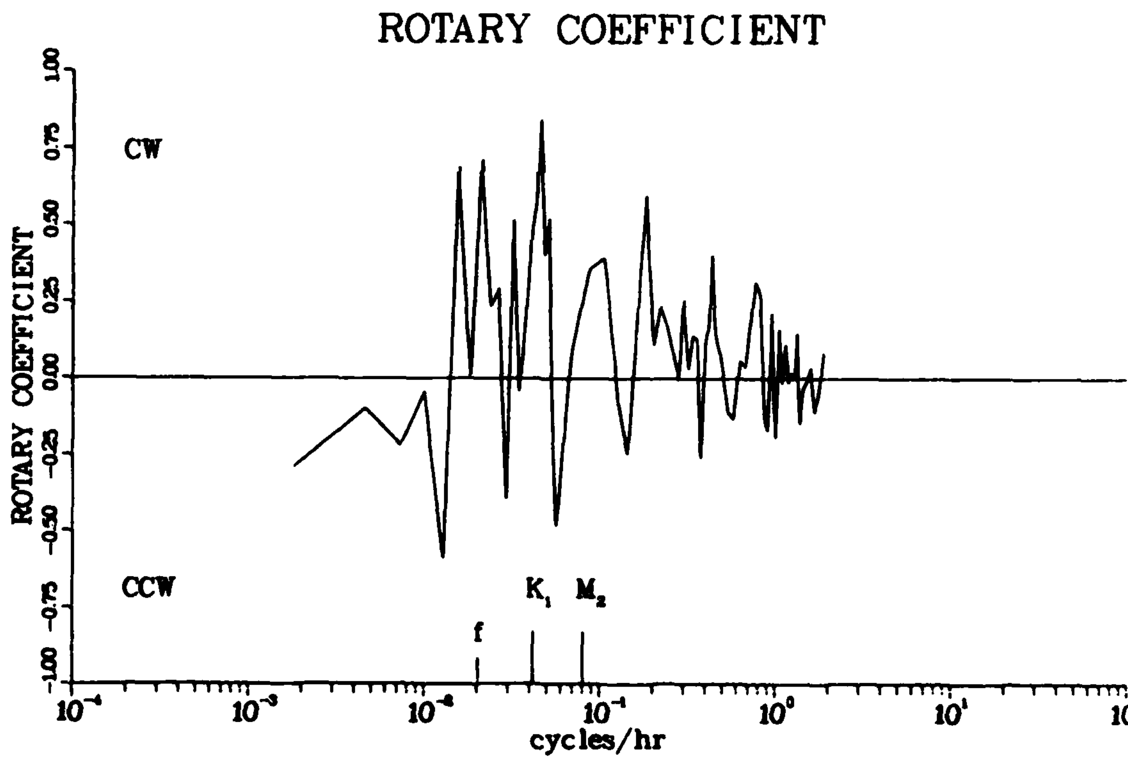
ROTARY SPECTRUM



Variable : U
Depth : 193
Meter : 406
Lat. : 14.17300
Long 62.54450

Variable : V
Depth : 193
Meter : 406
Lat. : 14.17300
Long 62.54450

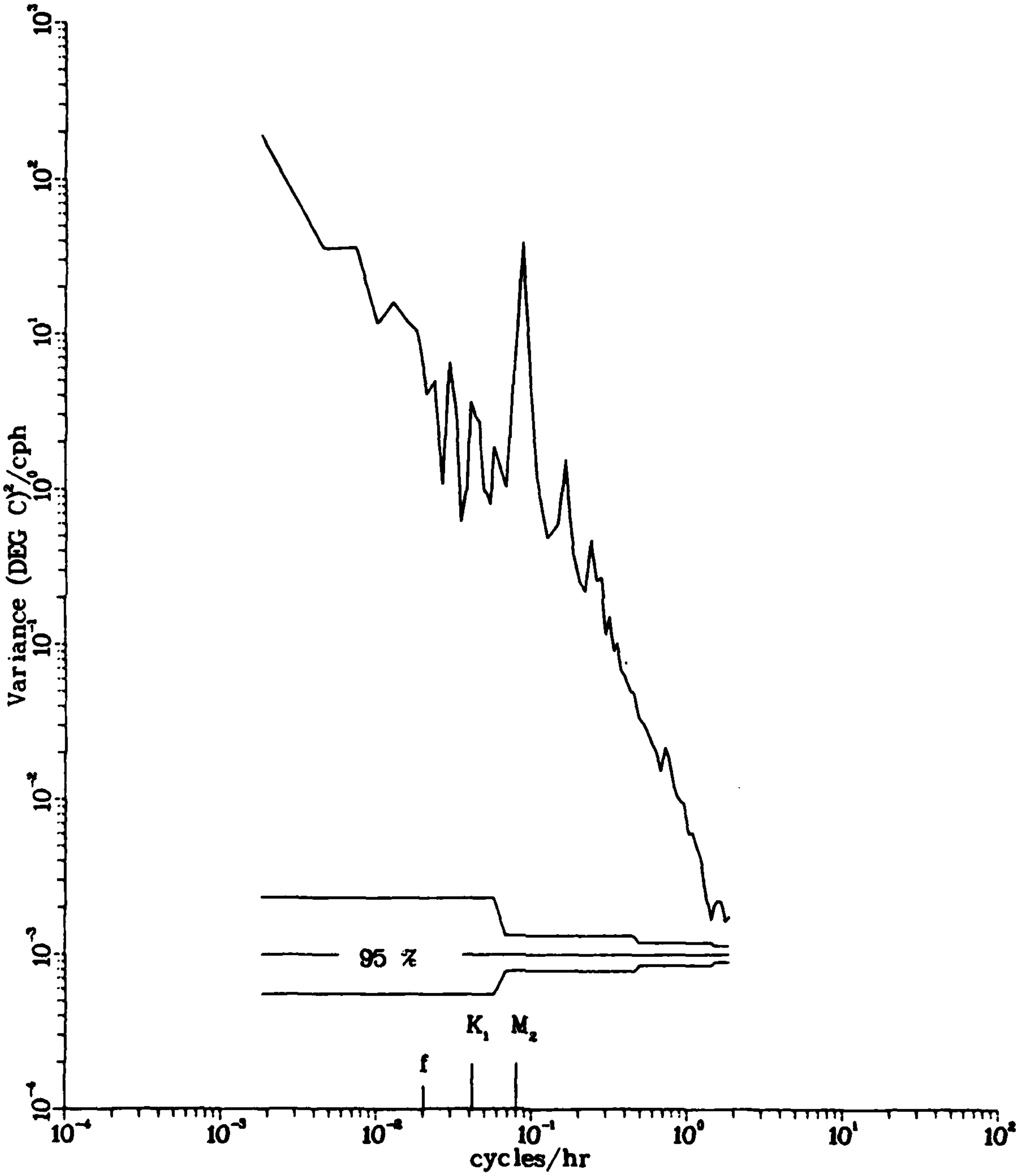
Figure 42. Meter 406 rotary spectrum



Variable :	**U**	**Variable :**	**V**
Depth :	**193**	**Depth .**	**193**
Meter .	**406**	**Meter .**	**406**
Lat. :	**14.17300**	**Lat. :**	**14.17300**
Long	**62.54450**	**Long**	**62.54450**

Figure 43. Meter 406 rotary coefficient

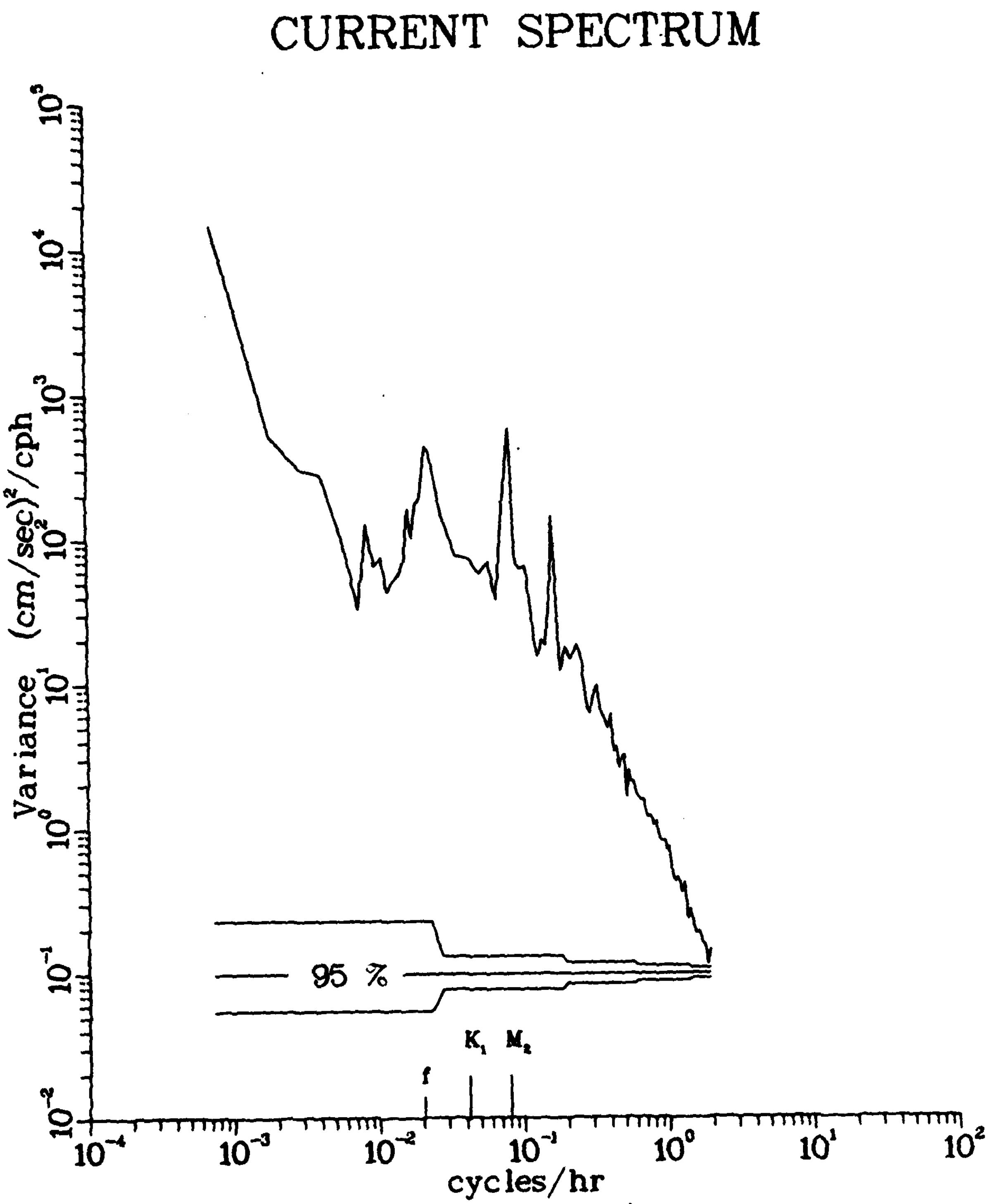
TEMPERATURE SPECTRUM



Variable : T
File : VACMF
Meter . 406
Lat. 14.17300
Long 62.54450

Array A
Depth . 193
Start : 6 AUG 1978
End . 20 SEP 1978

Figure 44. Meter 406 temperature spectrum



Variable : U
File : VACMF
Meter : 416
Lat. : 14.17300
Long 62.54450
Array A
Depth : 393
Start : 6 AUG 1978
End : 26 NOV 1978

Figure 45. Meter 416 east spectrum

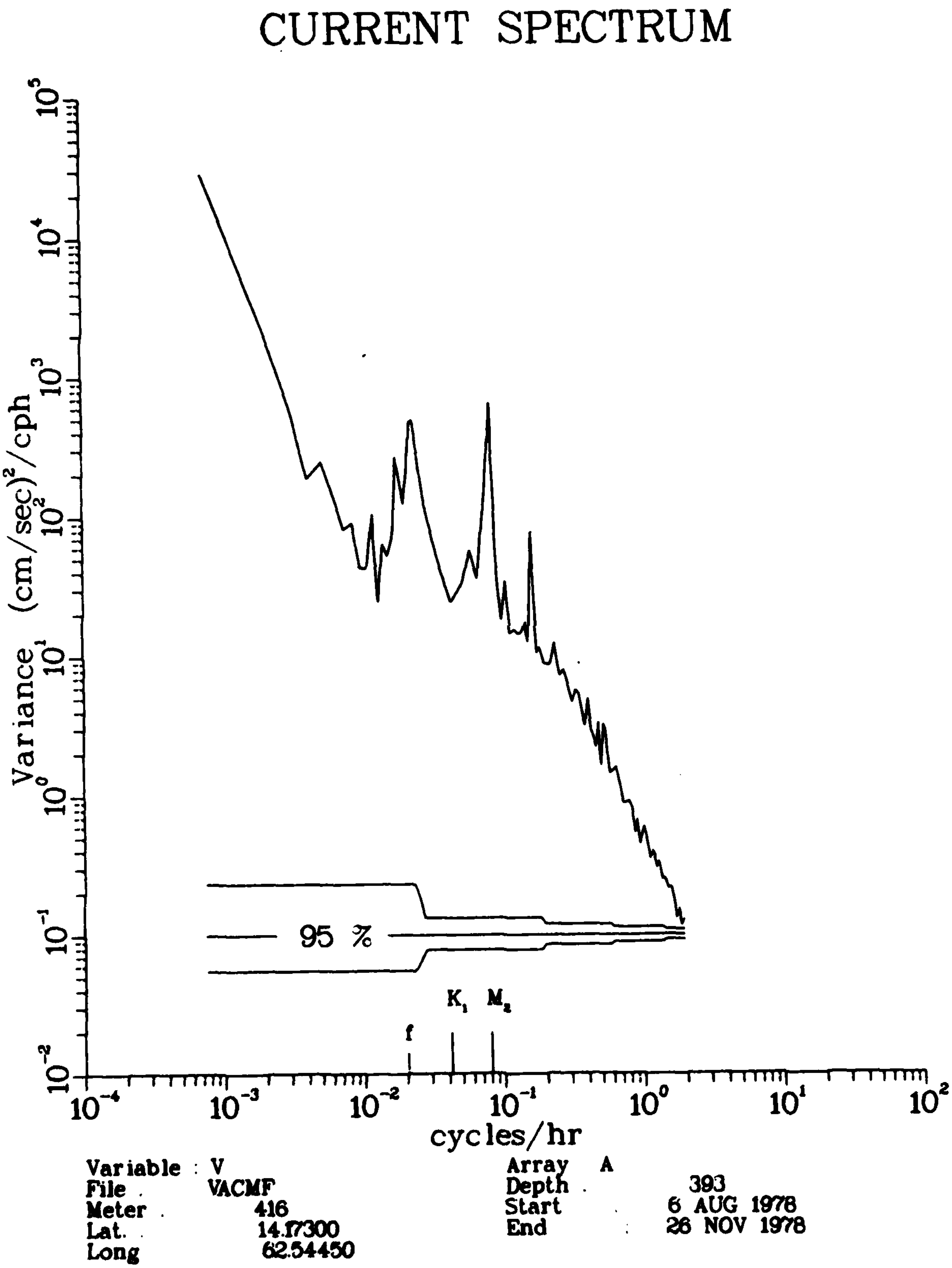
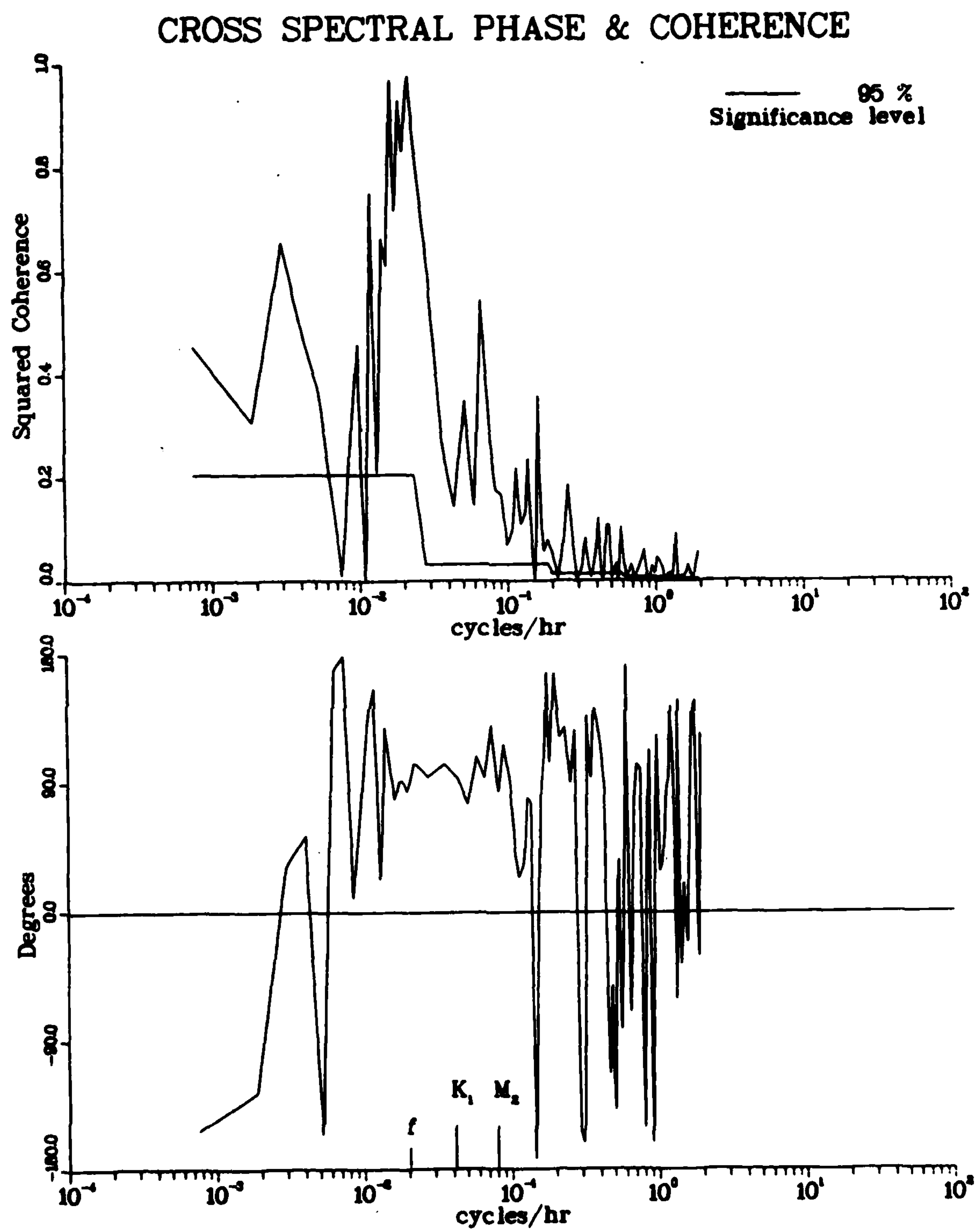


Figure 46. Meter 416 north spectrum



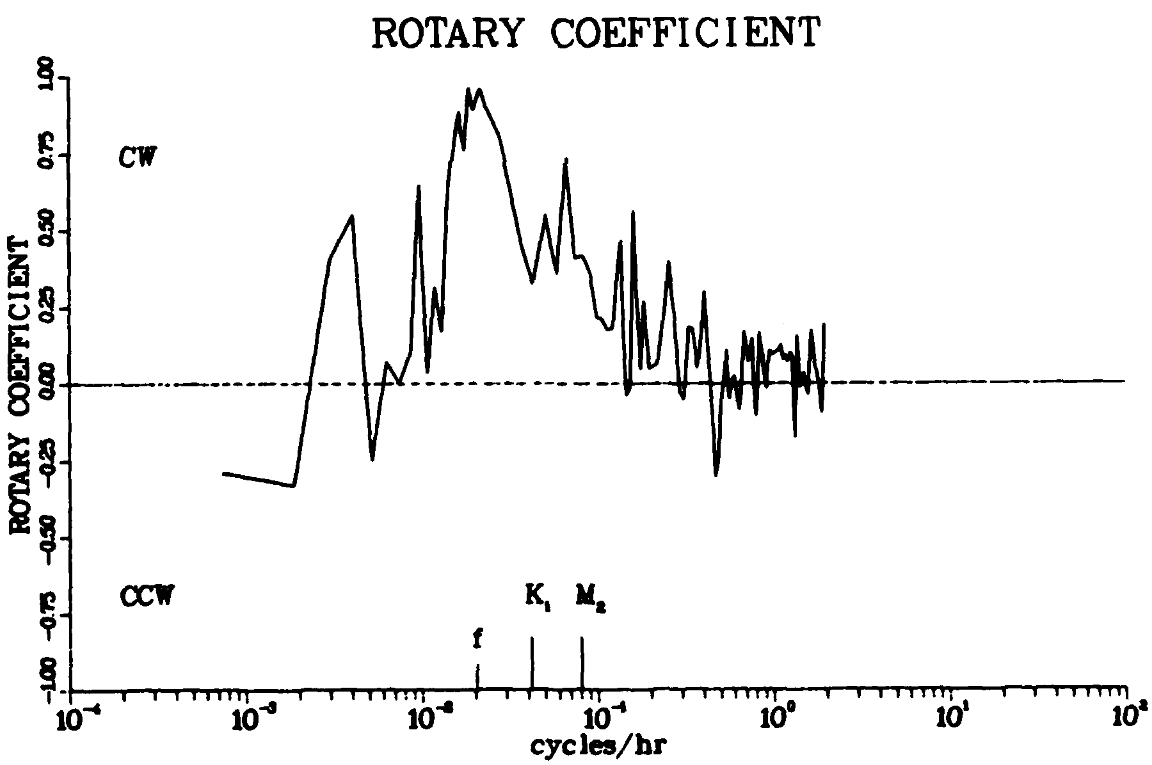
Variable : U
Depth : 393
Meter . 416
Lat. . 14.17300
Long 62.54450

Variable : V
Depth . 393
Meter : 416
Lat. : 14.17300
Long 62.54450

Figure 47. Meter 416 east-north coherence

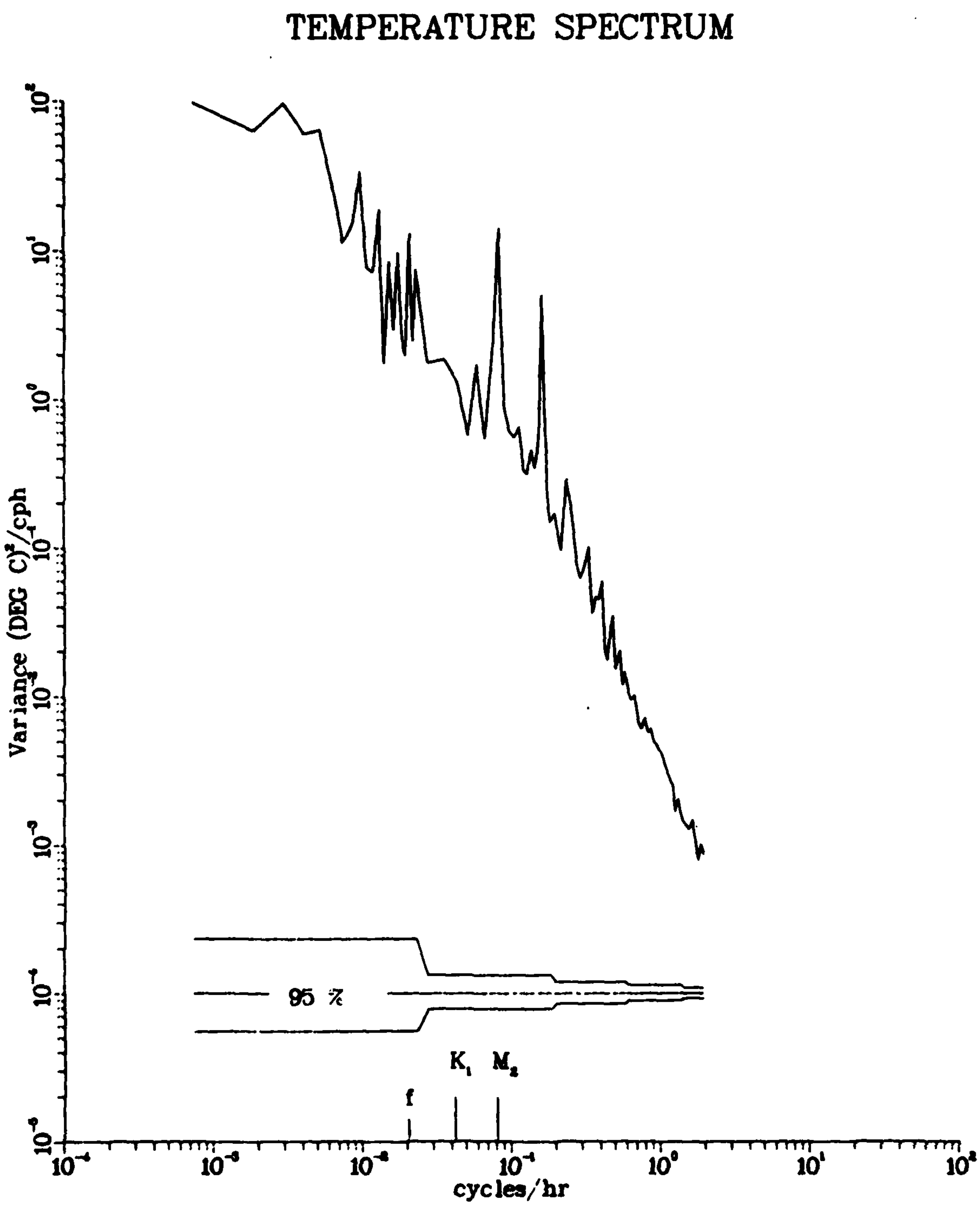
Variable : U		**Variable** : V	
Depth :	393	**Depth** :	393
Meter .	416	**Meter** .	416
Lat.	14.17300	**Lat.**	14.17300
Long	62.54450	**Long**	62.54450

Figure 48. Meter 416 rotary spectrum



Variable : U		**Variable : V**	
Depth :	**393**	**Depth :**	**393**
Meter :	**416**	**Meter .**	**416**
Lat. :	**14.17300**	**Lat.**	**14.17300**
Long	**62.54450**	**Long**	**62.54450**

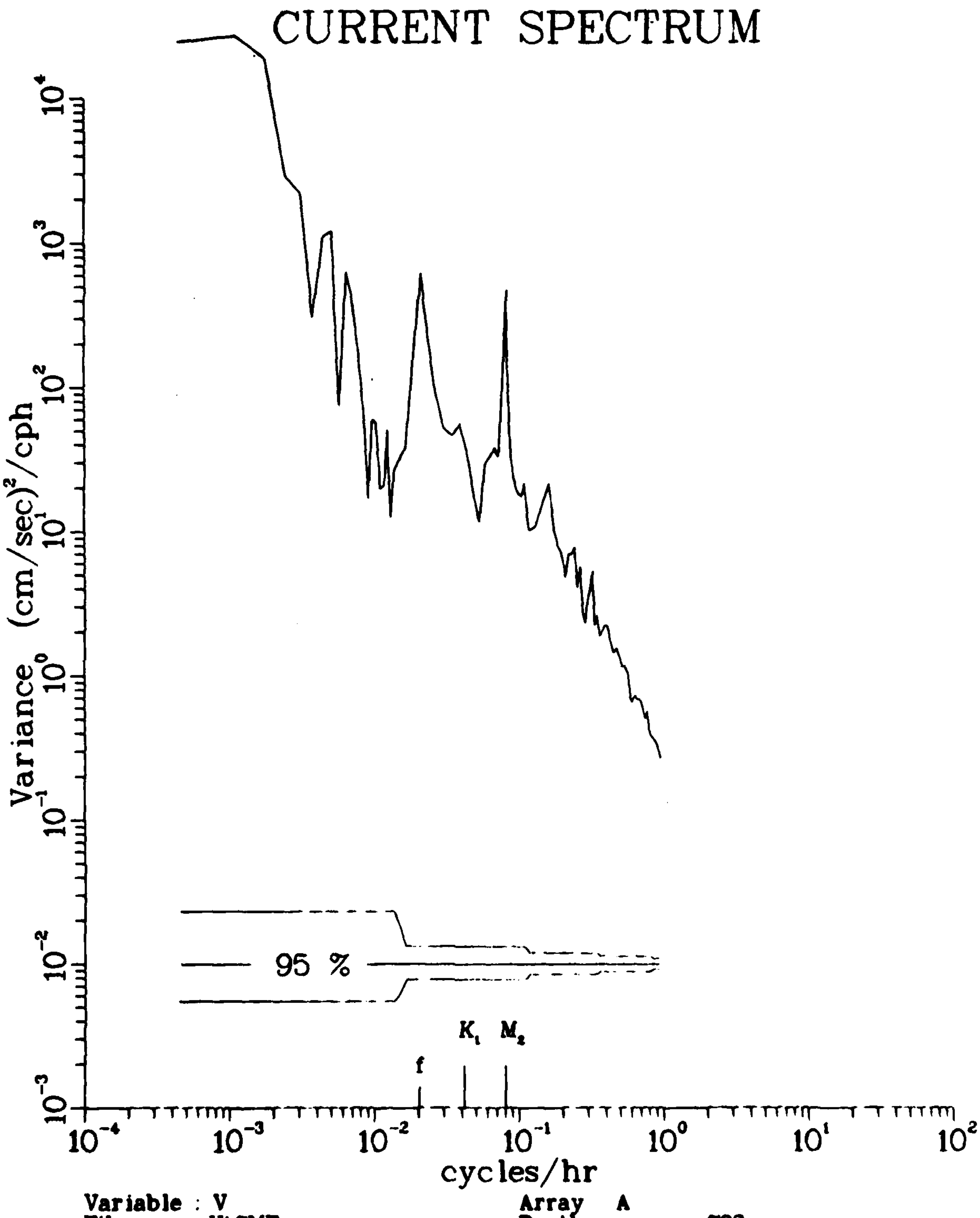
Figure 49. Meter 416 rotary coefficient



Variable : T
File : VACMF
Meter : 416
Lat. : 14.17300
Long 62.54450

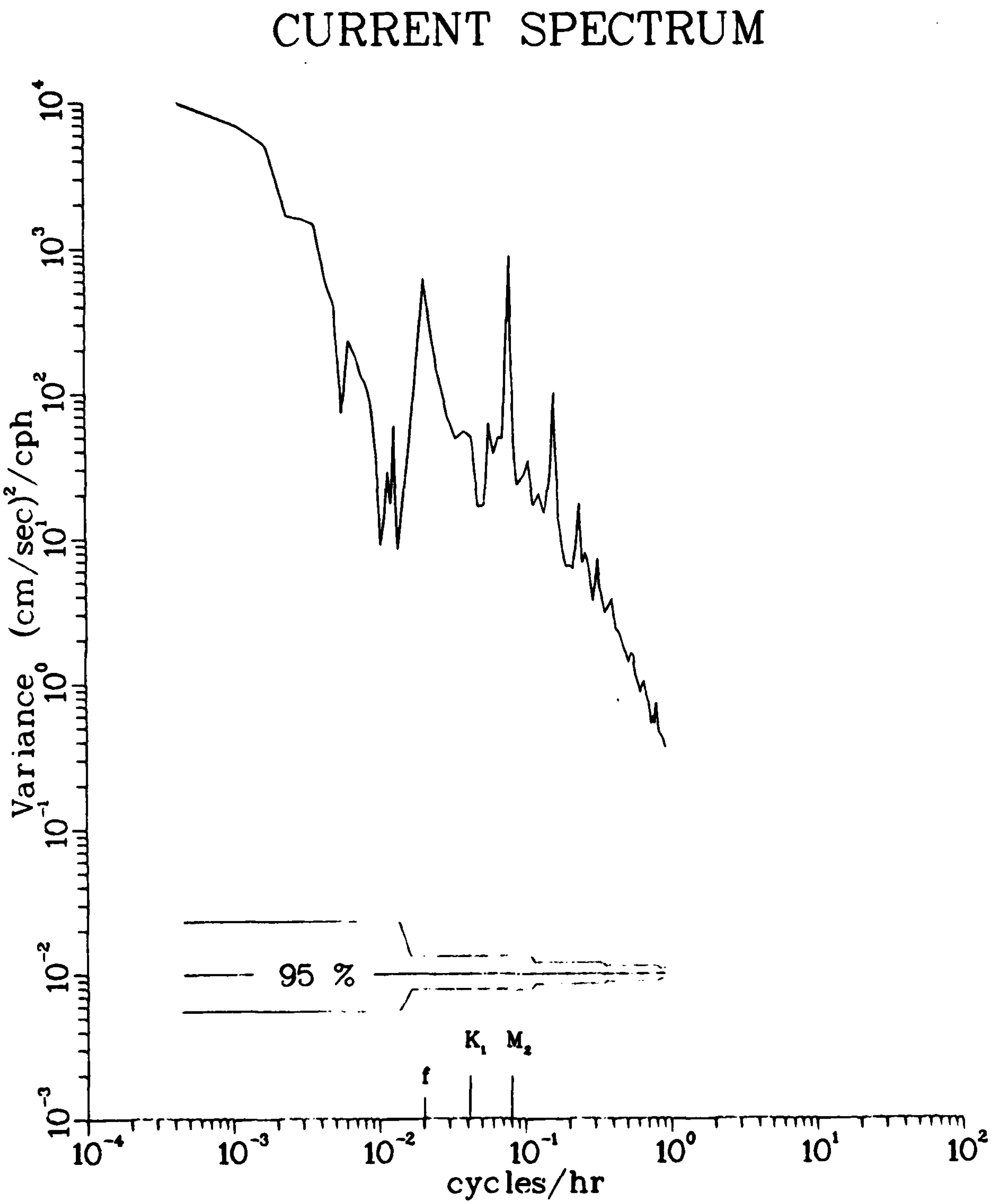
Array A
Depth : 393
Start 6 AUG 1978
End : 26 NOV 1978

Figure 50. Meter 416 temperature spectrum



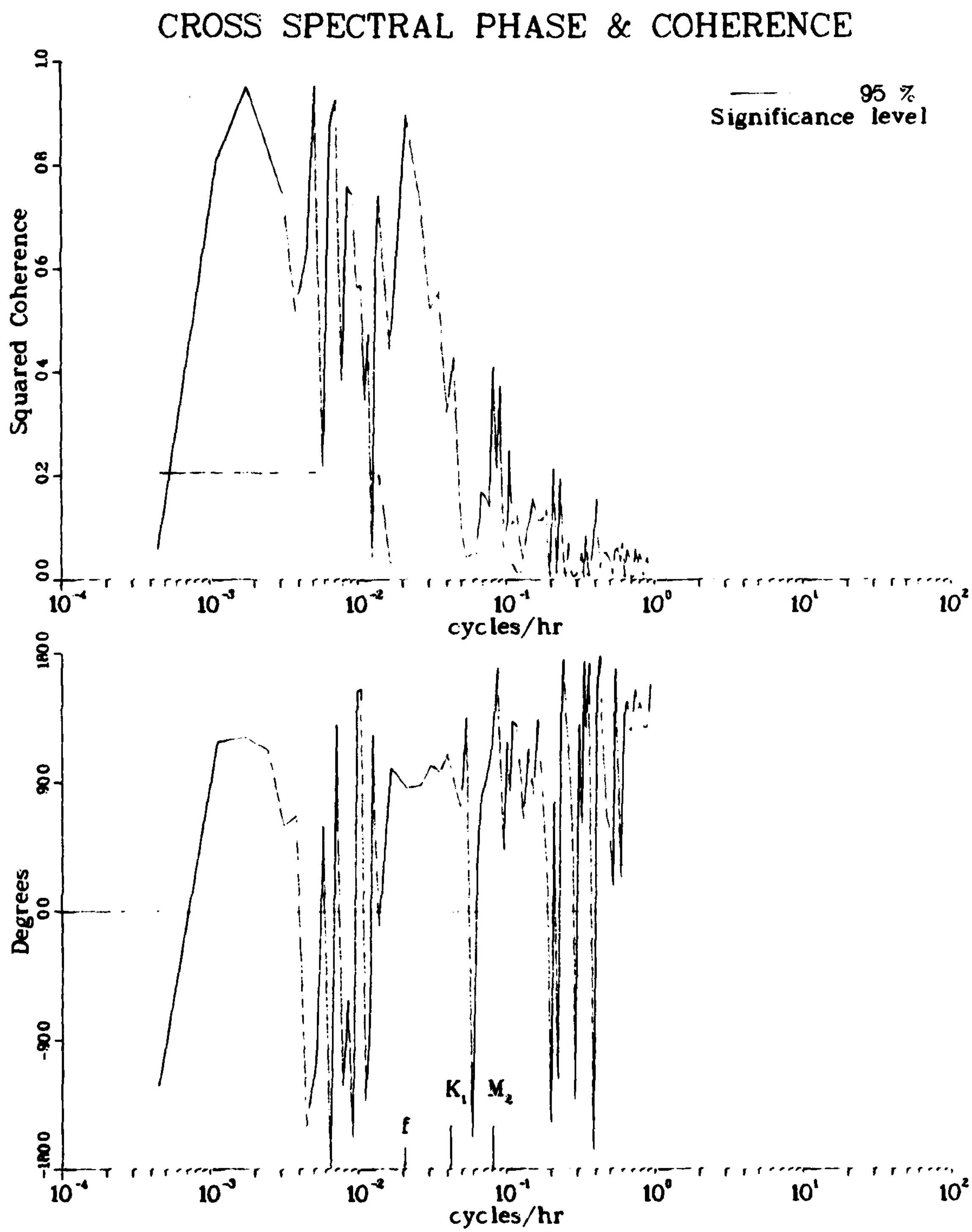
Variable :	**V**	**Array**	**A**
File :	**VACMF**	**Depth** :	**793**
Meter :	**412**	**Start** :	**6 AUG 1978**
Lat. :	**14.17300**		
Long	**62.54450**		

Figure 51. Meter 412 east spectrum



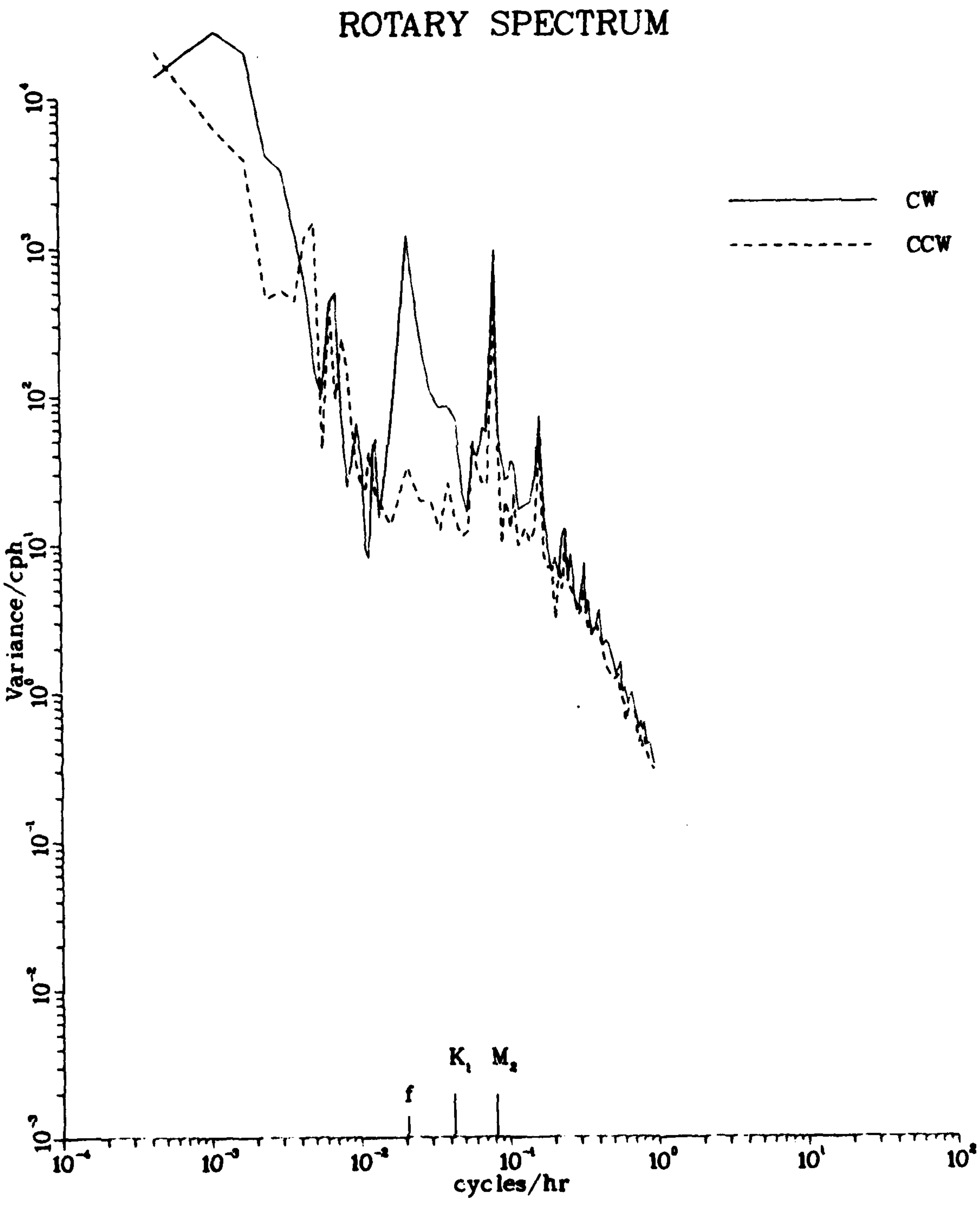
Variable :	U	Array	A
File :	VACMF	Depth .	793
Meter .	412	Start :	6 AUG 1978
Lat. :	14.17300		
Long	62.54450		

Figure 52. Meter 412 north spectrum



Variable	U	Variable	V
Depth	793	Depth	793
Meter	412	Meter	412
Lat.	14.17300	Lat.	14.17300
Long	62.54450	Long	62.54450

Figure 53. Meter 412 east-north coherence



Variable : U		**Variable : V**	
Depth :	**793**	**Depth :**	**793**
Meter :	**412**	**Meter :**	**412**
Lat. .	**14.17300**	**Lat. .**	**14.17300**
Long	**62.54450**	**Long**	**62.54450**

Figure 54. Meter 412 rotary spectrum

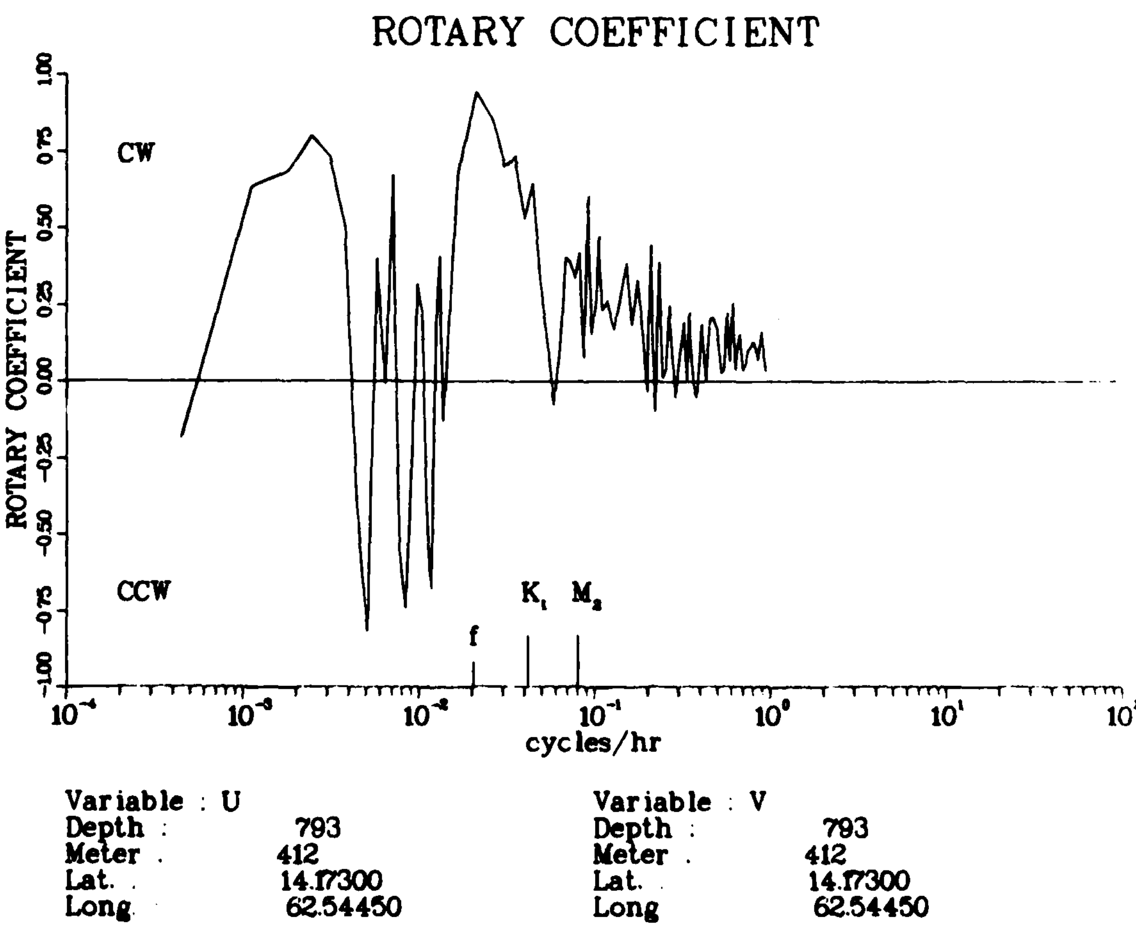
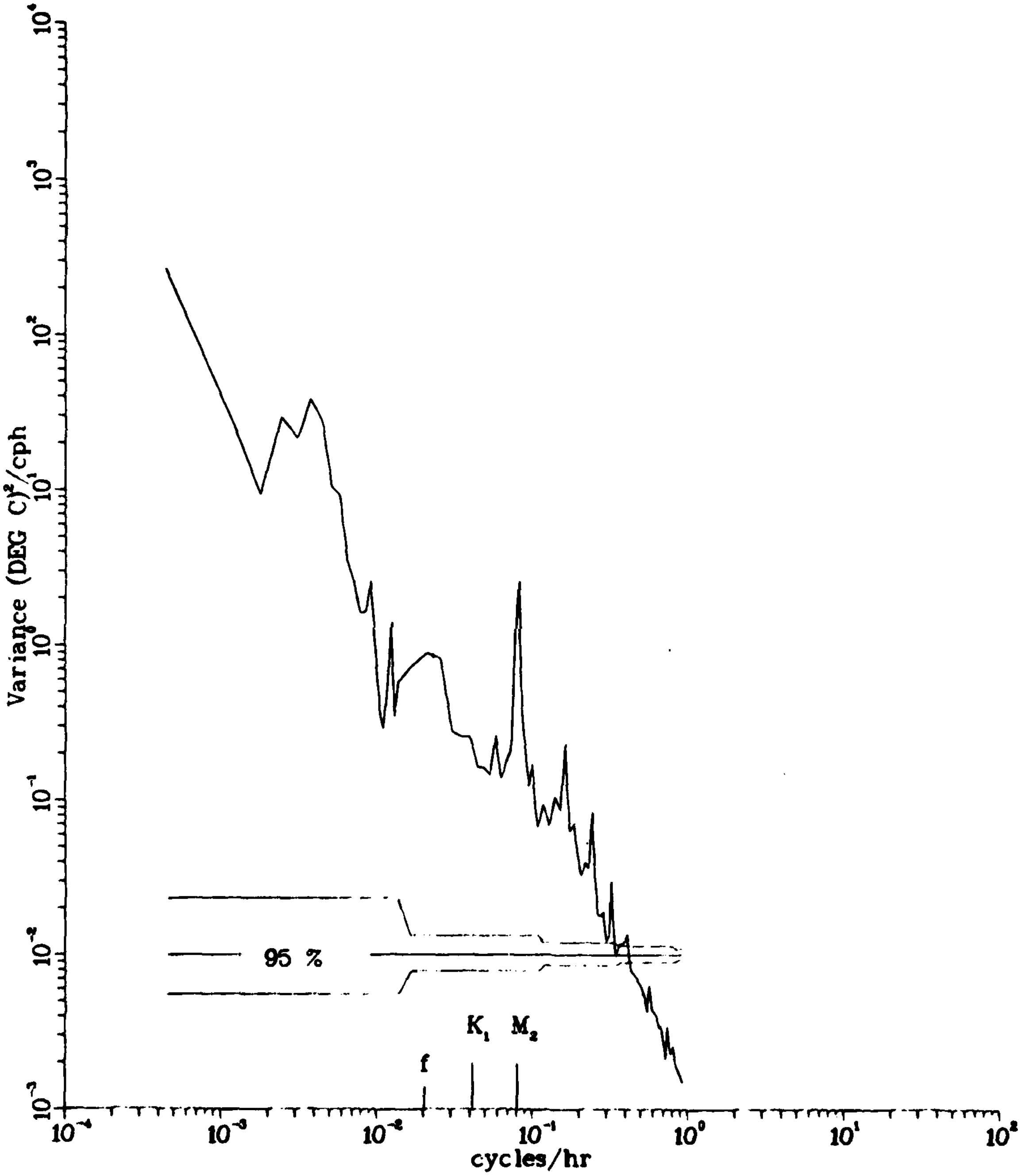


Figure 55. Meter 412 rotary coefficient

TEMPERATURE SPECTRUM

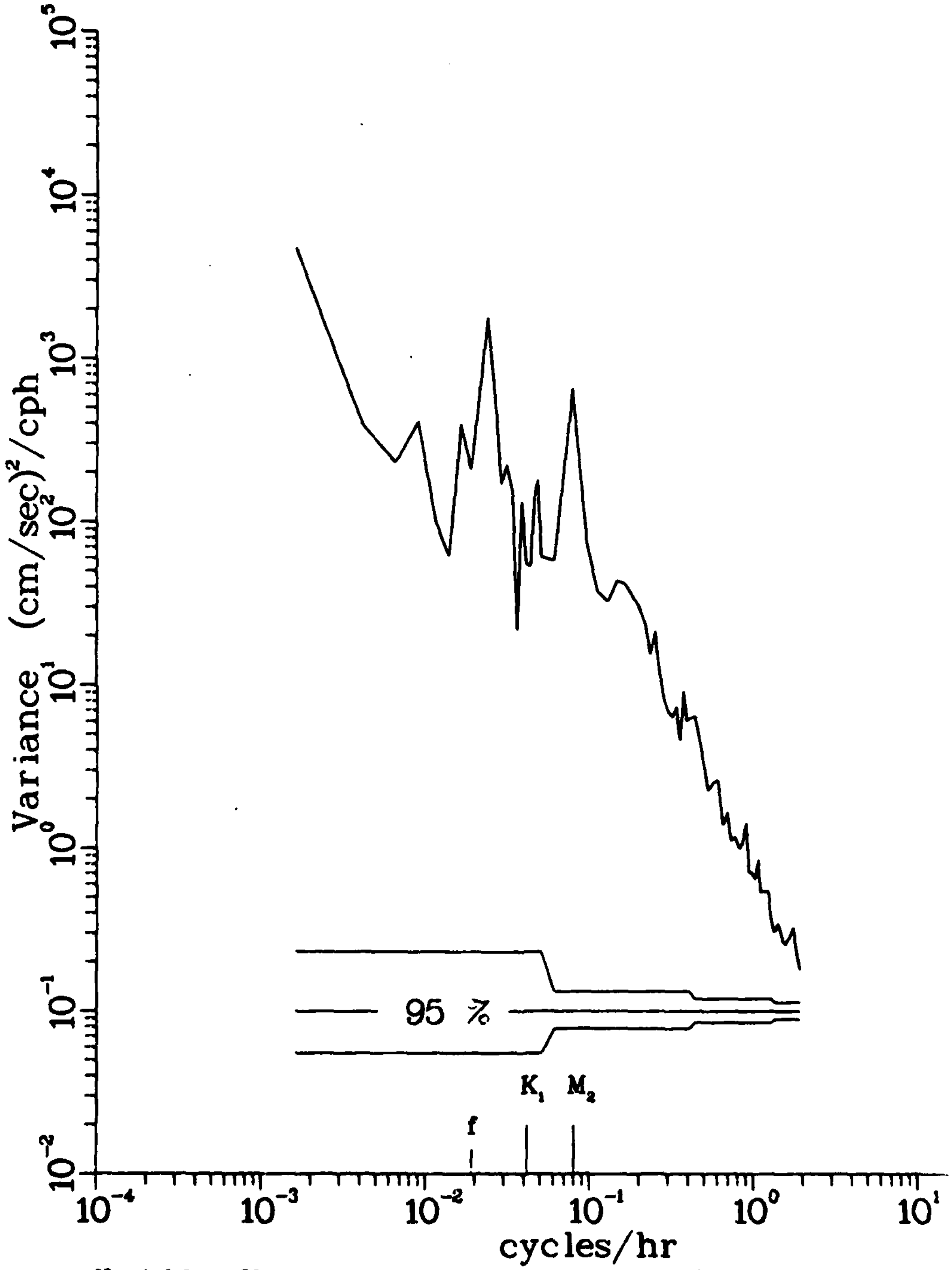


Variable : T
File : VACMF
Meter : 412
Lat. : 14.17300
Long 62.54450

Array A
Depth : 793
Start : 6 AUG 1978
End : * G 1978

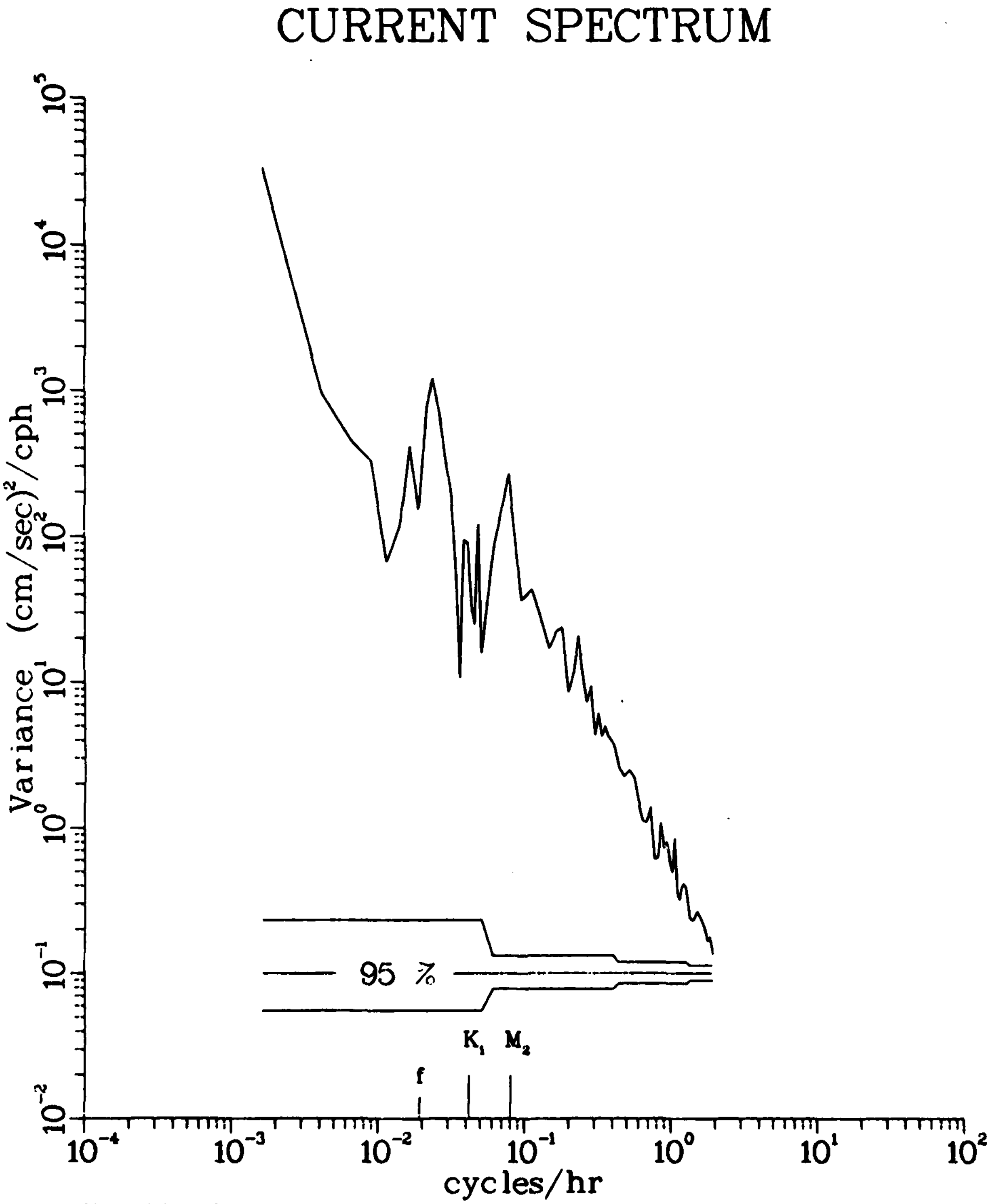
Figure 56. Meter 412 temperature spectrum

CURRENT SPECTRUM



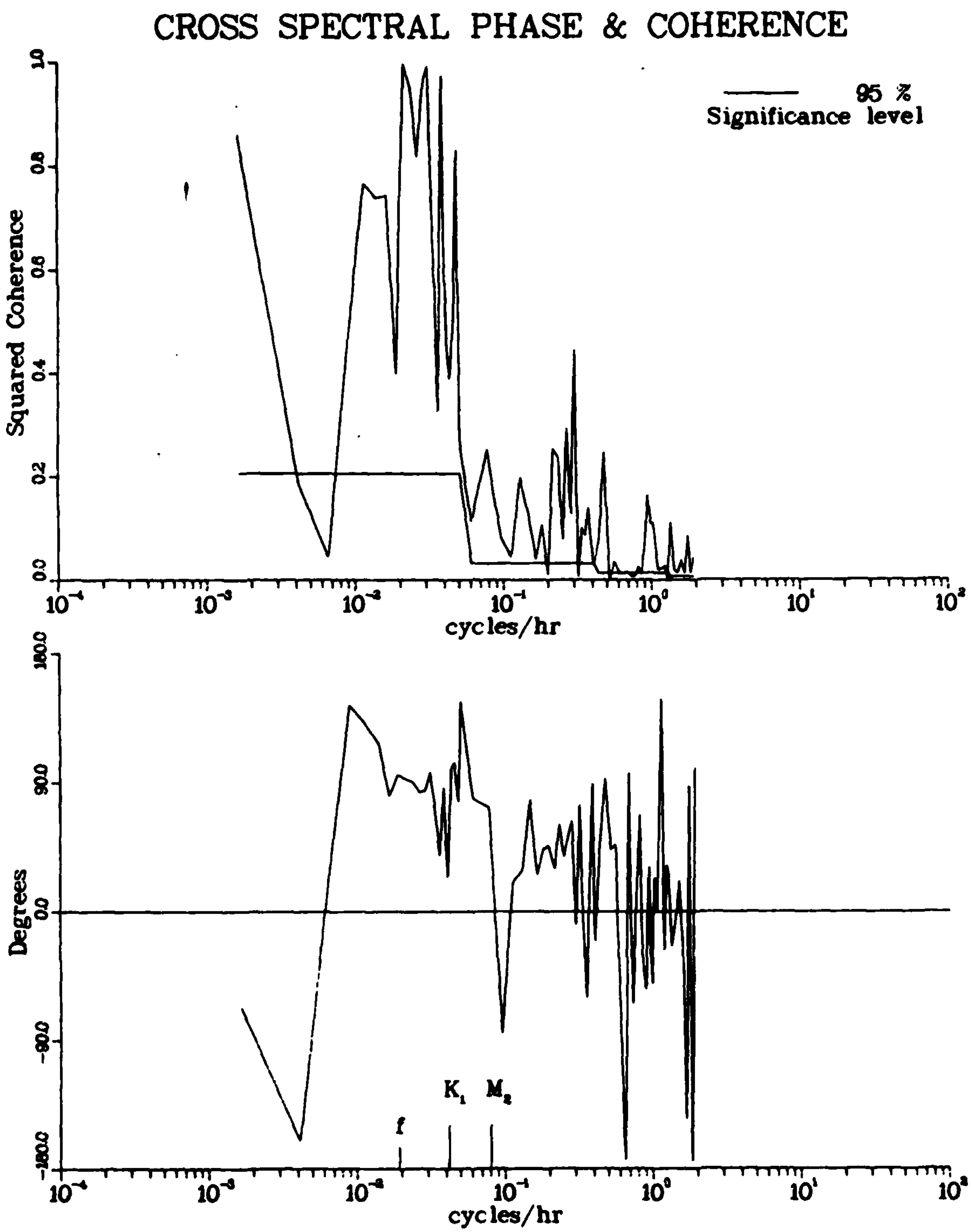
Variable :	U	Array :	B
File :	VACMF	Depth :	193
Meter :	219	Start :	6 AUG 1978
Lat. :	13.40500	End :	26 SEP 1978
Long	62.44900		

Figure 57. Meter 219 east spectrum



Variable :	V	Array :	B
File :	VACMF	Depth :	193
Meter :	219	Start :	6 AUG 1978
Lat. :	13.40500	End :	26 SEP 1978
Long	62.44900		

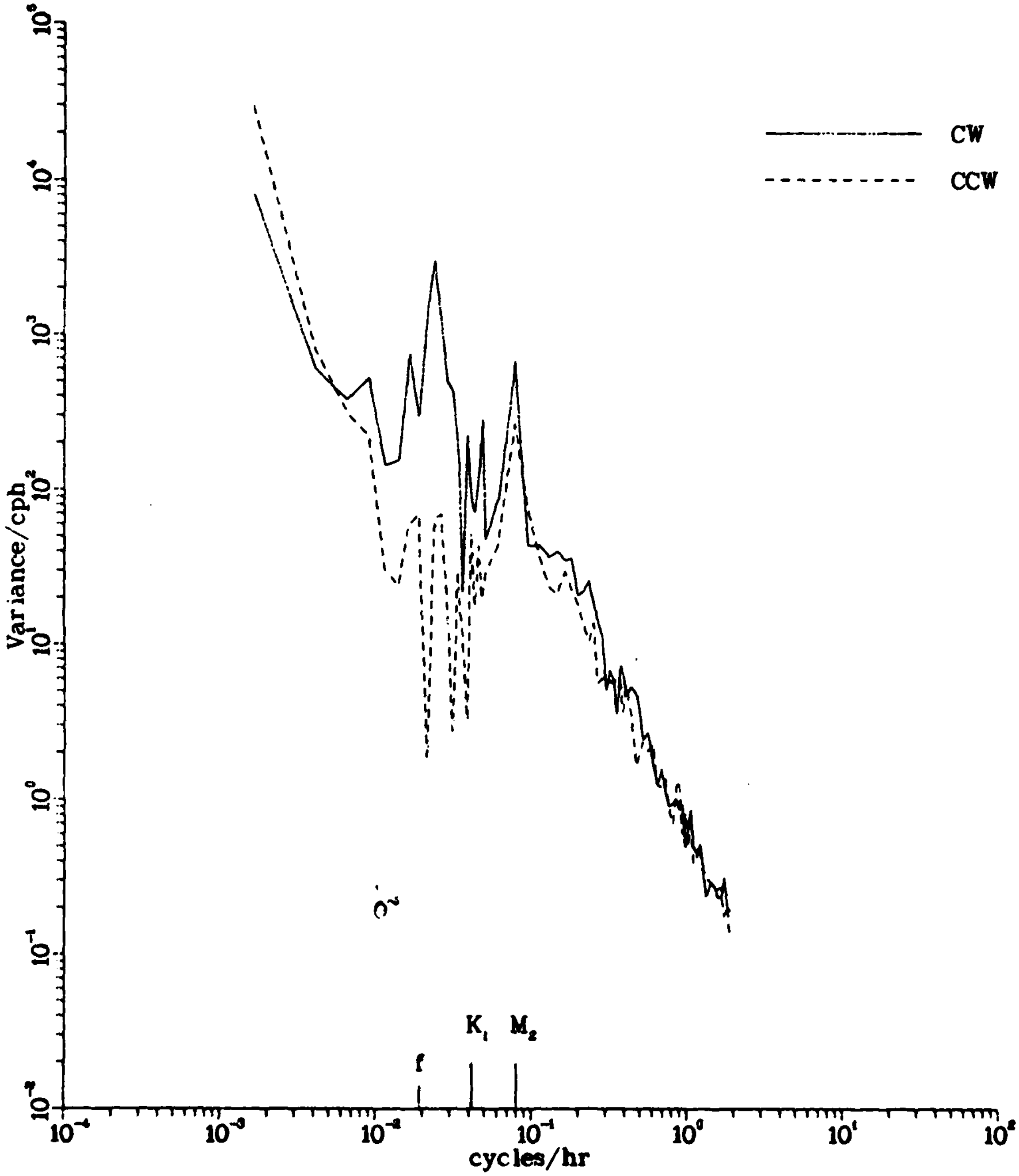
Figure 58. Meter 219 north spectrum



Variable : U		Variable : V	
Depth :	193	Depth :	193
Meter :	219	Meter .	219
Lat. :	13.40500	Lat. .	13.40500
Long	62.44900	Long	62.44900

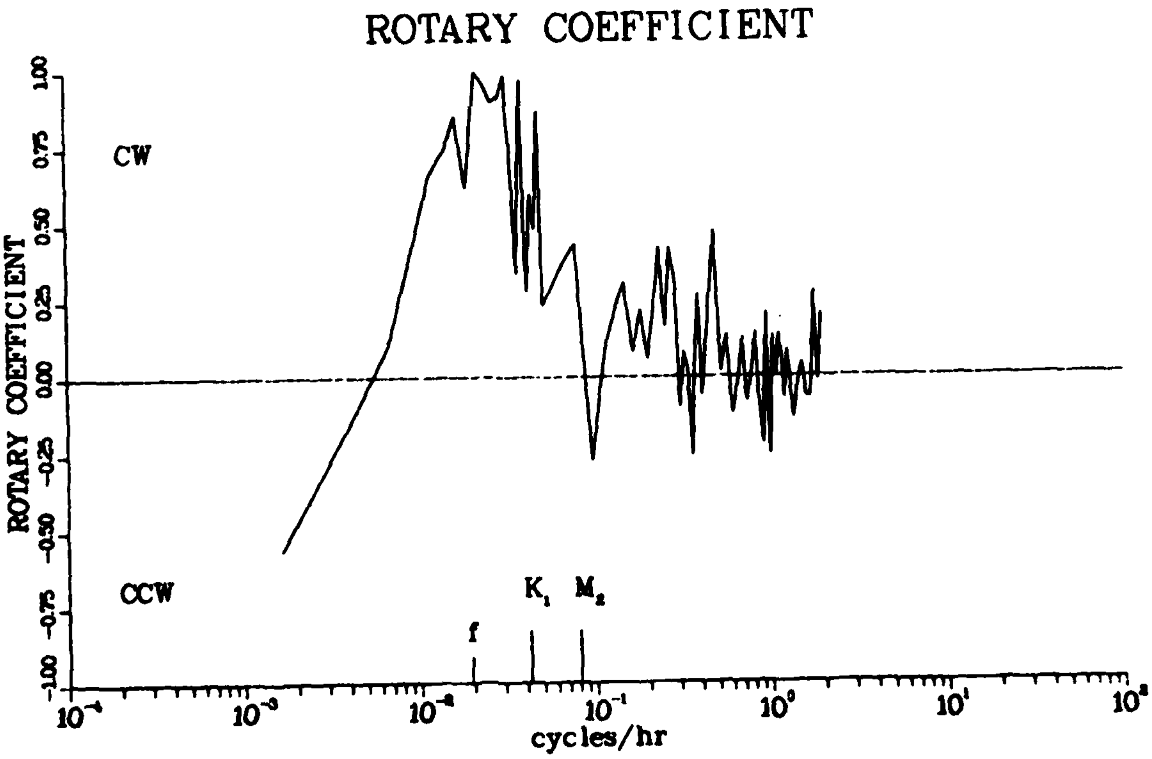
Figure 59. Meter 219 east-north coherence

ROTARY SPECTRUM



Variable : U		Variable : V	
Depth :	193	Depth :	193
Meter .	219	Meter	219
Lat.	13.40500	Lat.	13.40500
Long	62.44900	Long	62.44900

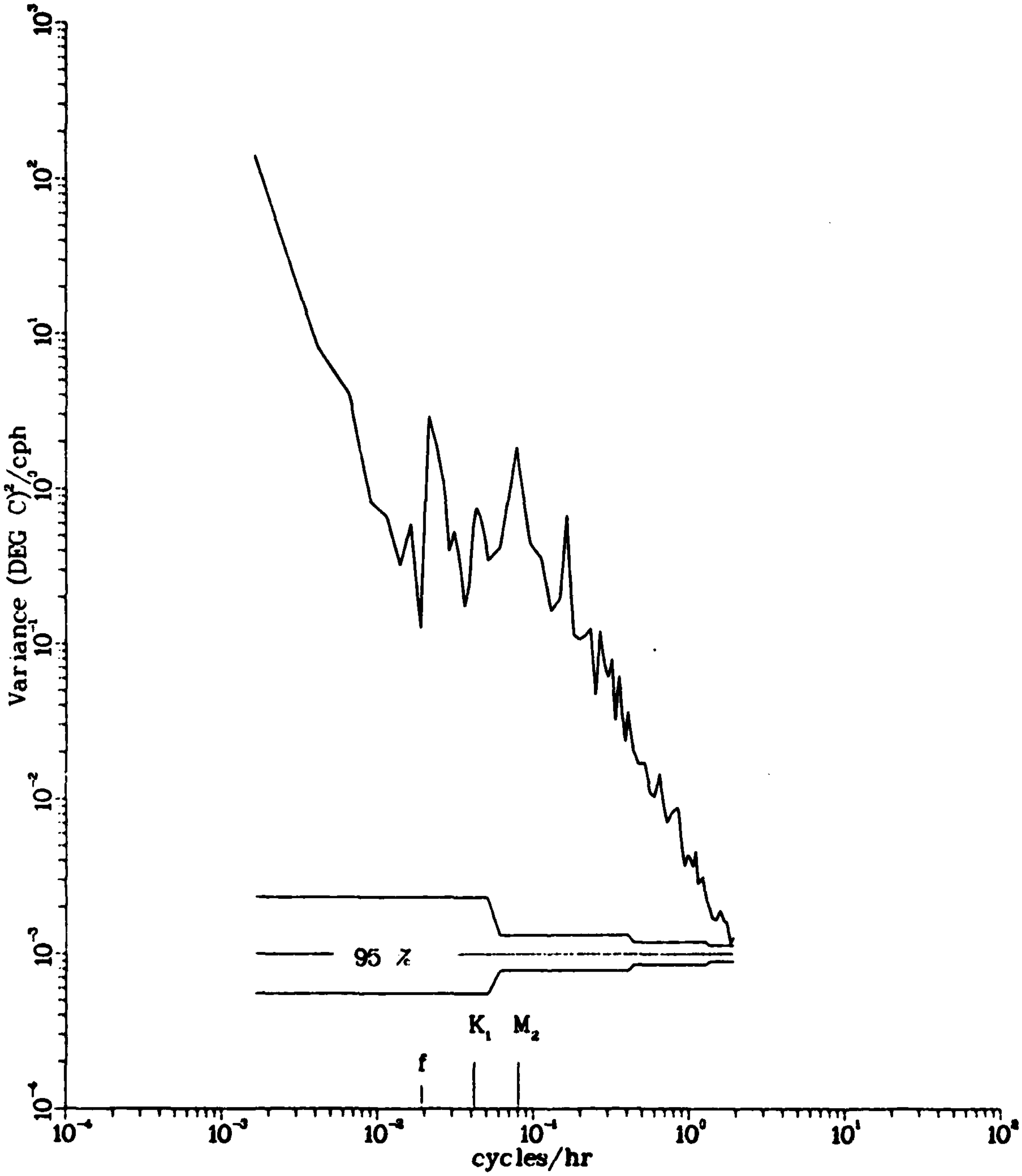
Figure 60. Meter 219 rotary spectrum



Variable :	U	Variable :	V
Depth :	193	Depth :	193
Meter :	219	Meter :	219
Lat. :	13.40500	Lat. :	13.40500
Long	62.44900	Long	62.44900

Figure 61. Meter 219 rotary coefficient

TEMPERATURE SPECTRUM

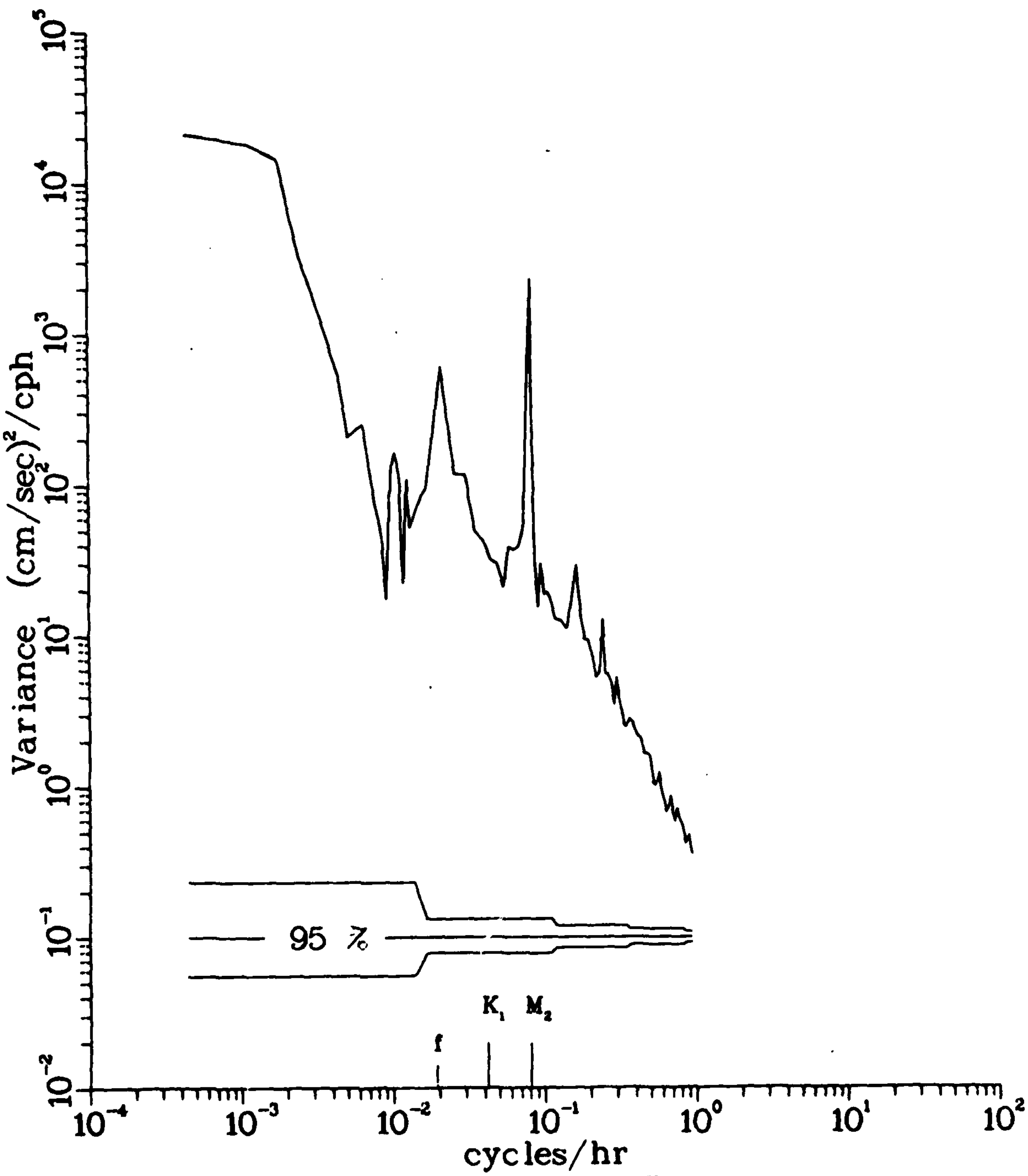


Variable : T
File : VACMF
Meter . 219
Lat. : 13.40500
Long 62.44900

Array B
Depth : 193
Start : 6 AUG 1978
End : 28 SEP 1978

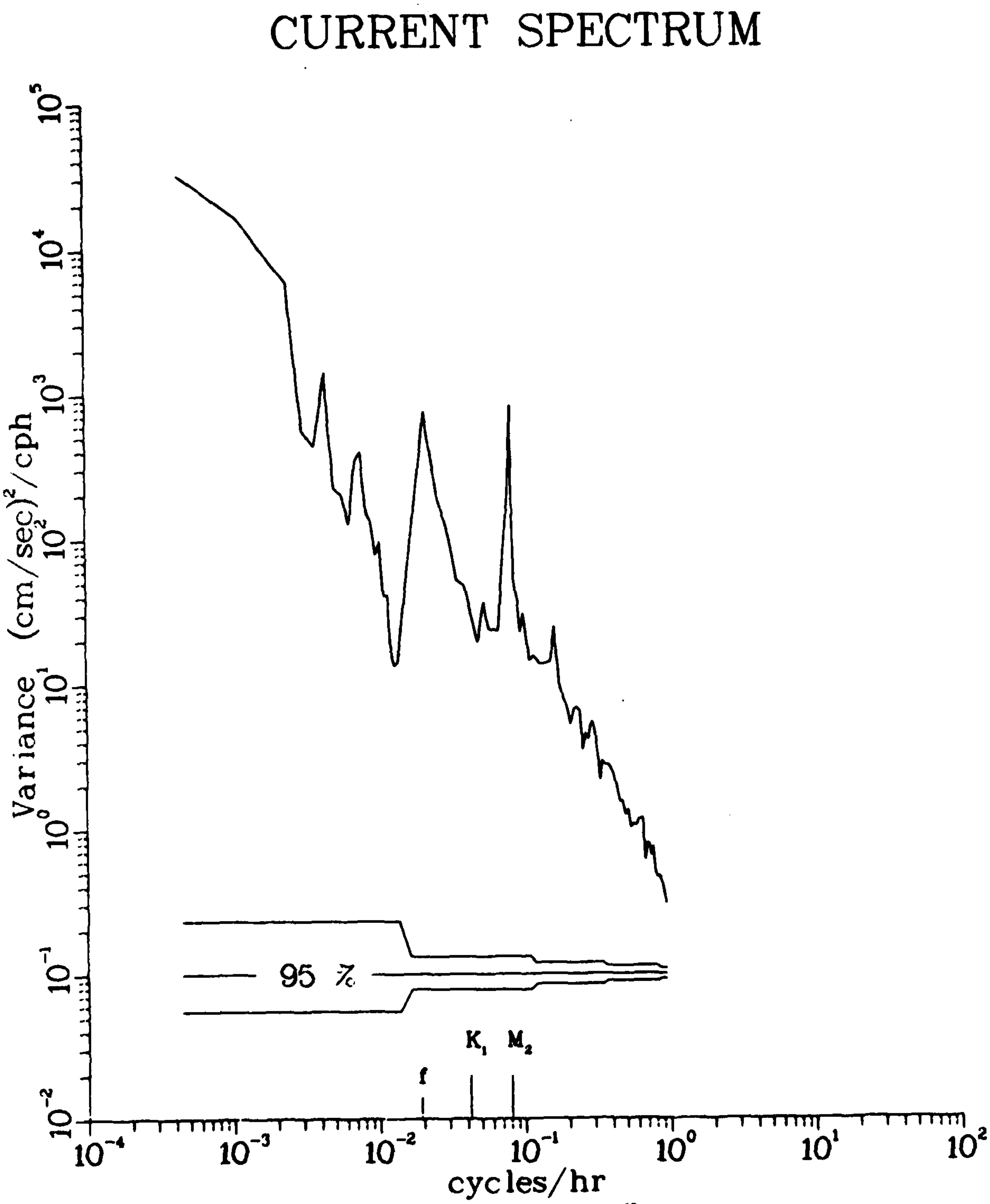
Figure 62. Meter 219 temperature spectrum

CURRENT SPECTRUM



Variable :	U	Array	B
File .	VACMF	Depth .	393
Meter .	298	Start :	6 AUG 1978
Lat. :	13.40500	End :	9 FEB 1979
Long	62.44900		

Figure 63. Meter 298 east spectrum



Variable	V	Array	B
File	VACMF	Depth	393
Meter	298	Start	6 AUG 1978
Lat	13.40500	End	9 FEB 1979
Long	62.44900		

Figure 64. Meter 298 north spectrum

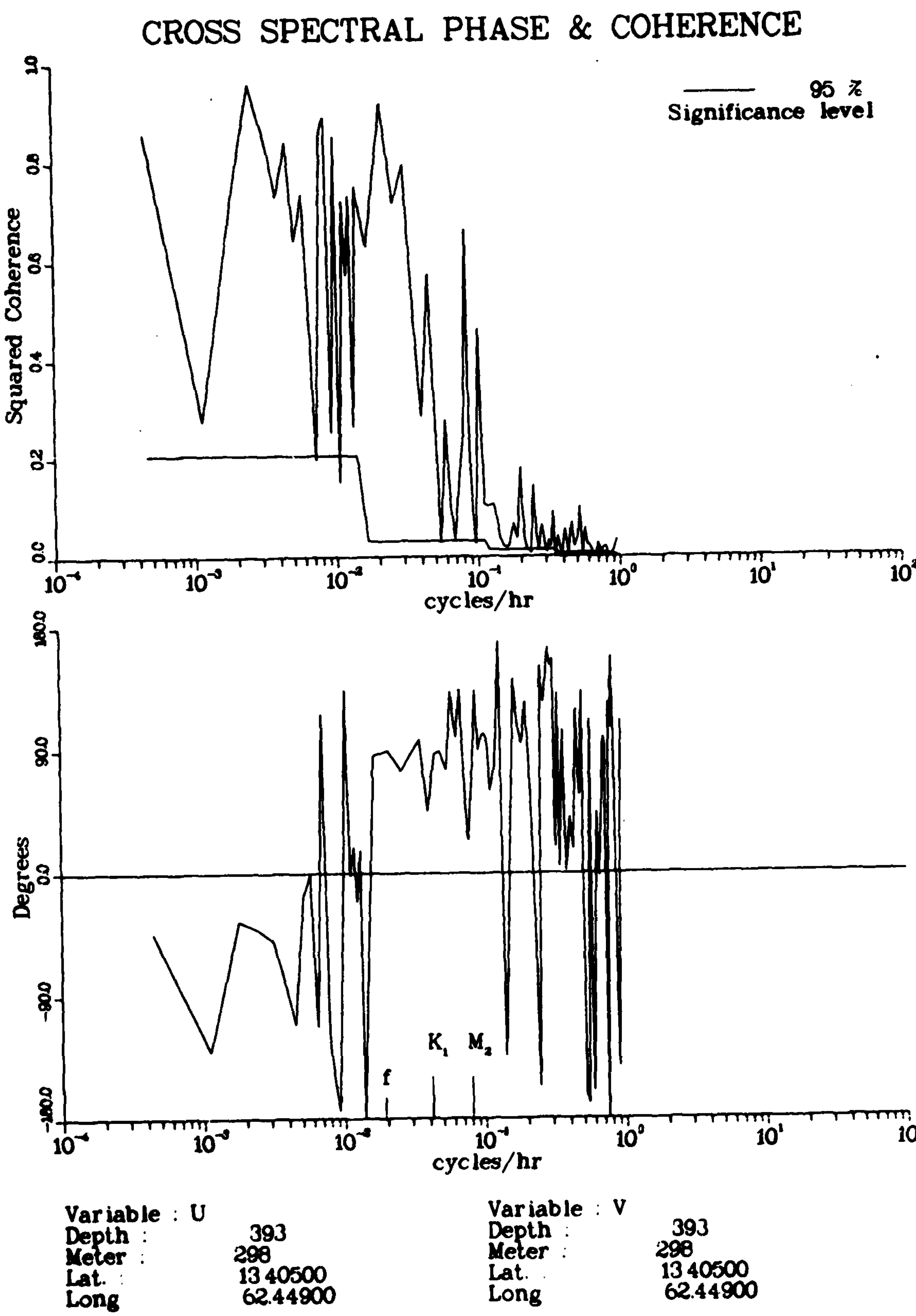
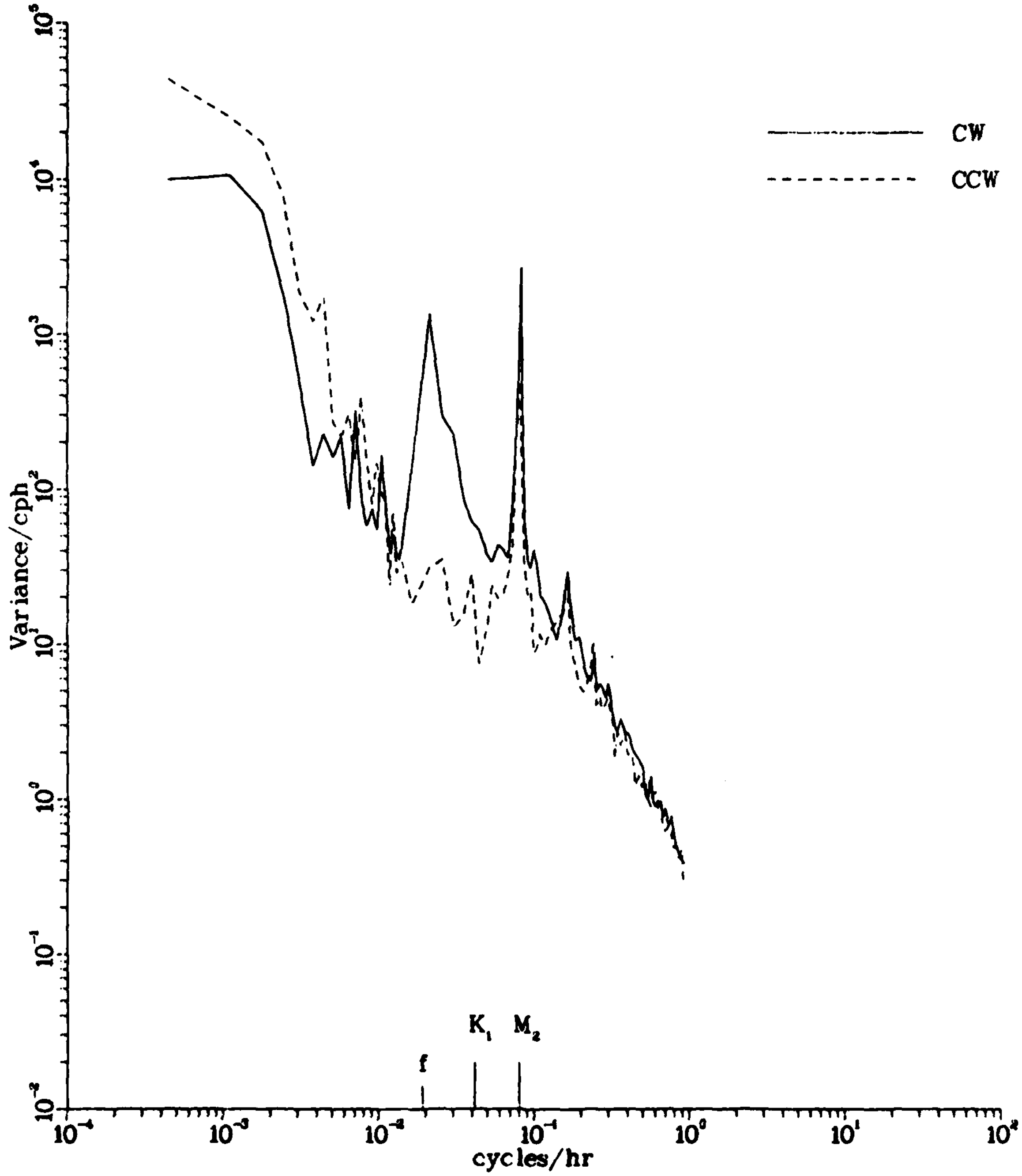


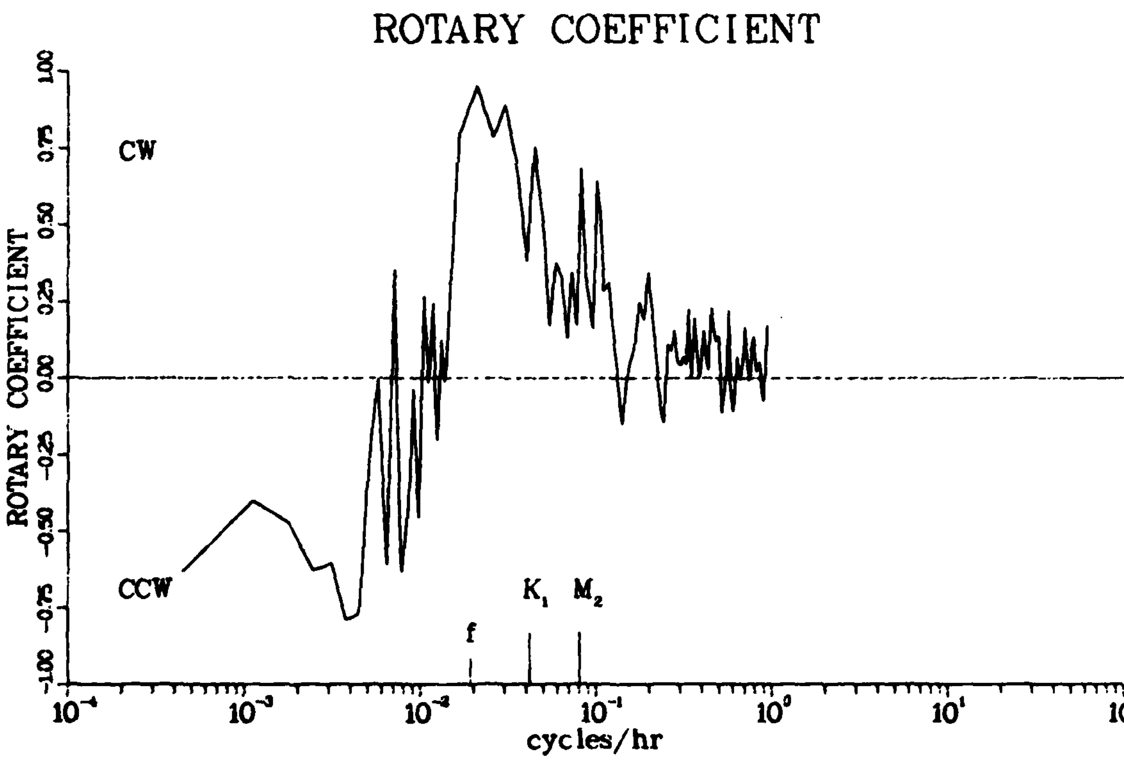
Figure 65. Meter 298 east-north coherence

ROTARY SPECTRUM



Variable : U		Variable : V	
Depth :	393	Depth :	393
Meter :	298	Meter	298
Lat. :	13.40500	Lat.	13.40500
Long	62.44900	Long	62.44900

Figure 66. Meter 298 rotary spectrum



Variable : U		Variable : V	
Depth :	393	Depth :	393
Meter .	298	Meter .	298
Lat. :	13.40500	Lat. .	13.40500
Long	62.44900	Long	62.44900

Figure 67. Meter 298 rotary coefficient

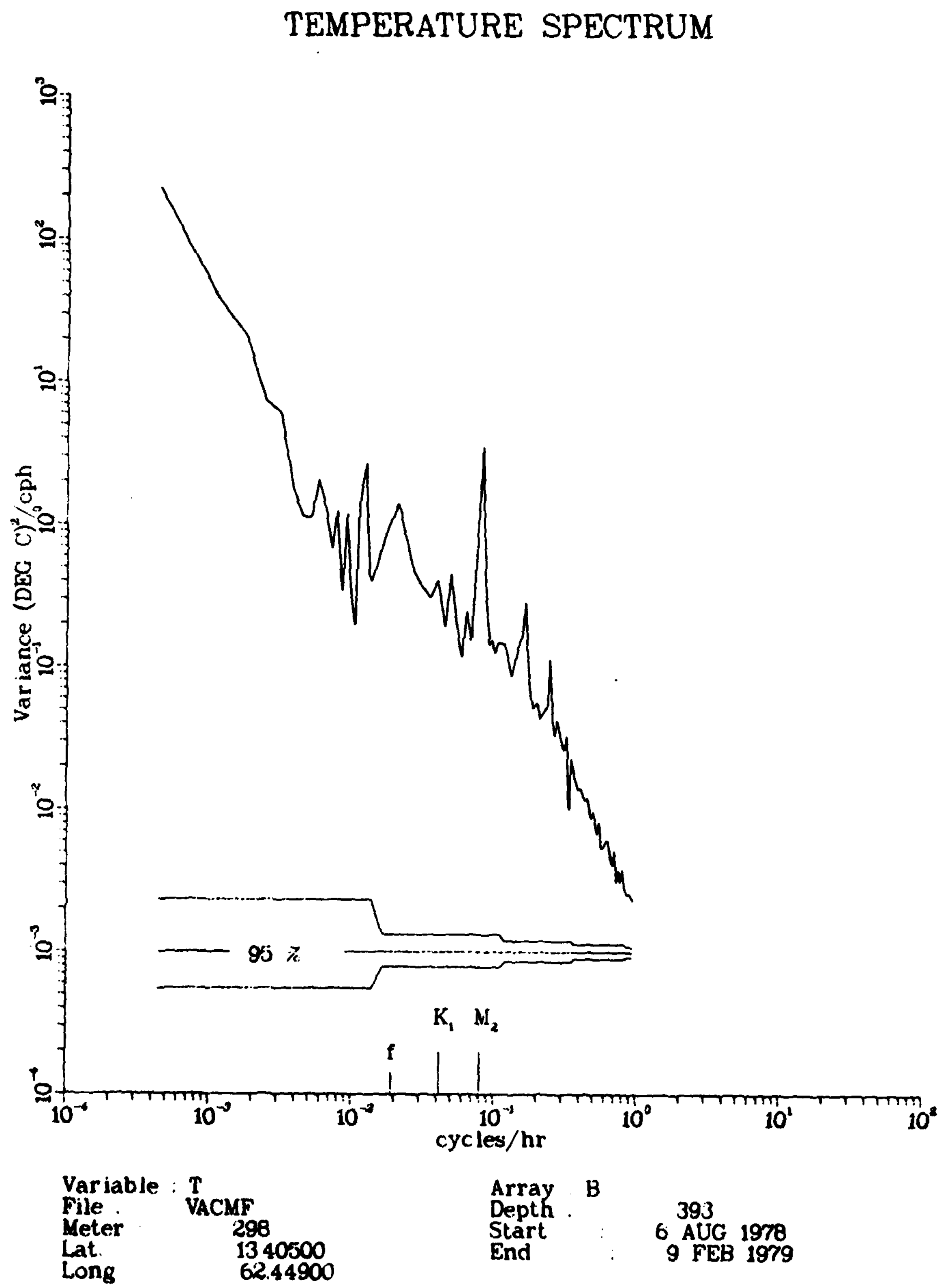
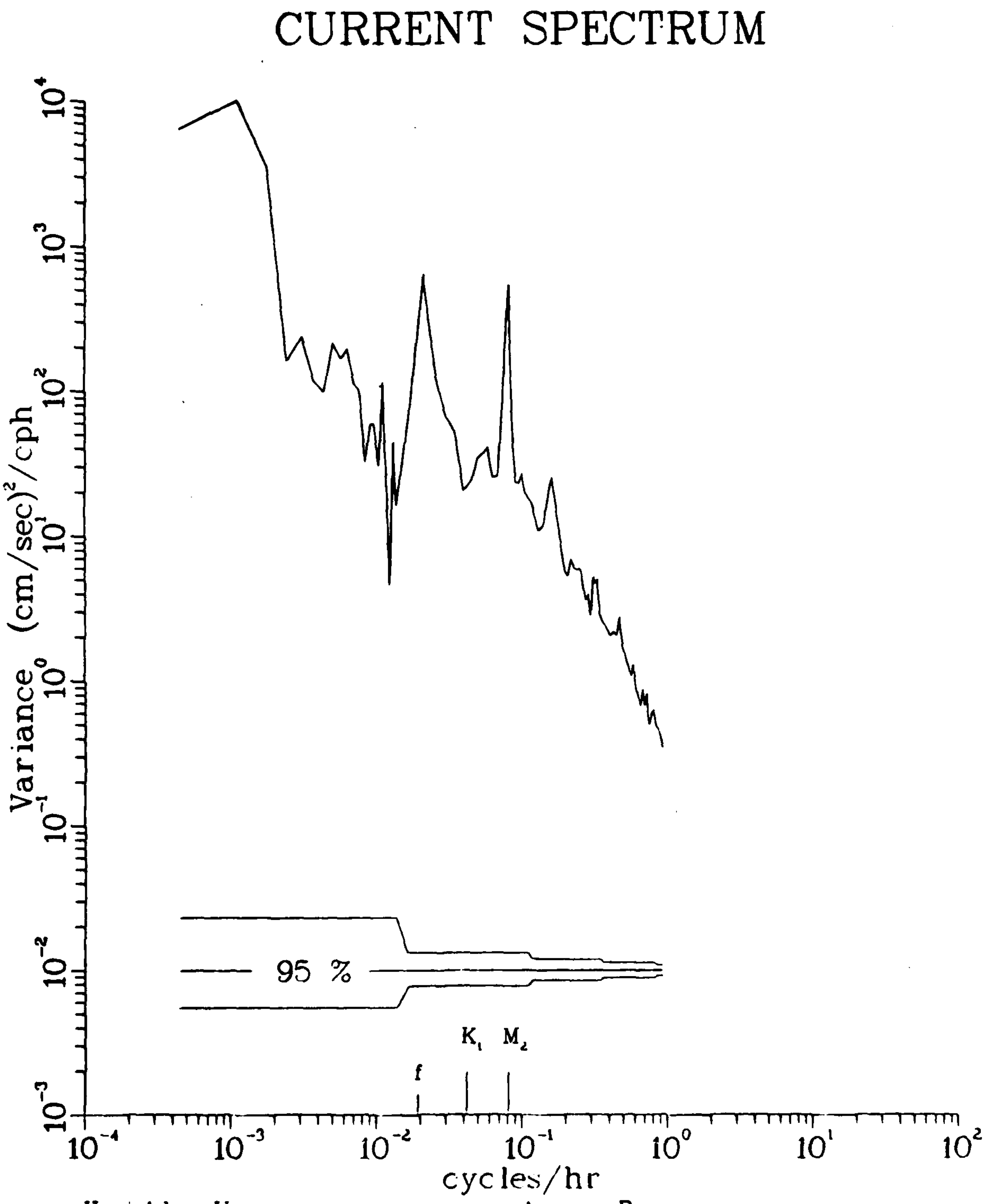


Figure 68. Meter 298 temperature spectrum



Variable U
File VACMF
Meter 417
Lat. 13 40500
Long 62 44900
Array B
Depth 793
Start 7 AUG 1978

Figure 69. Meter 417 east spectrum

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CURRENT METER DATA FROM THE SOUTHEASTERN CARIBBEAN SEA, AUGUST --ETC(U
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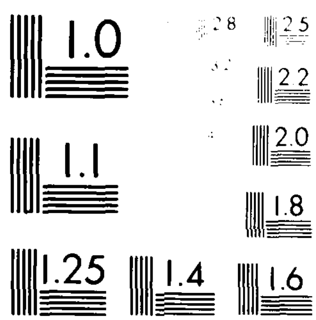
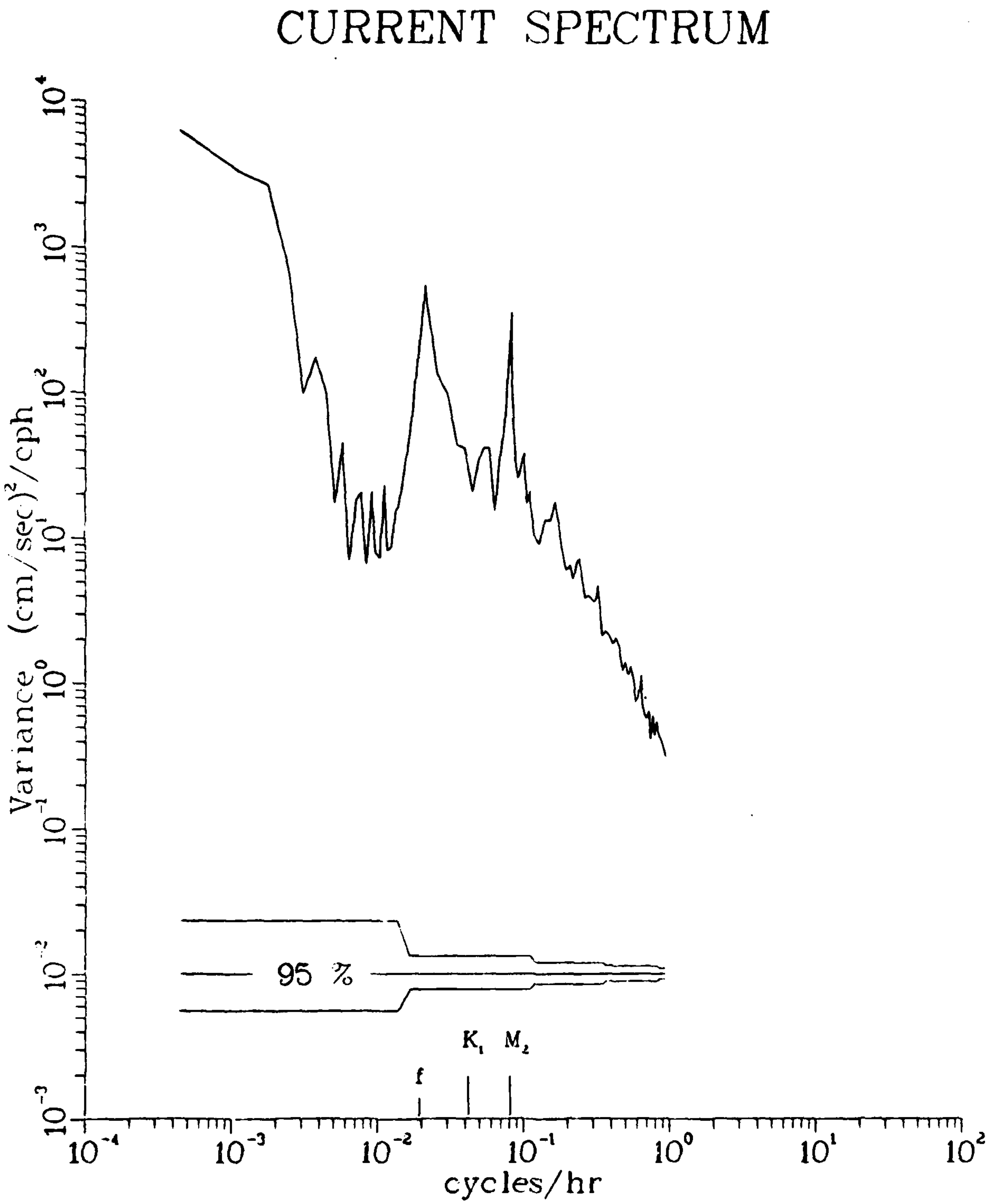
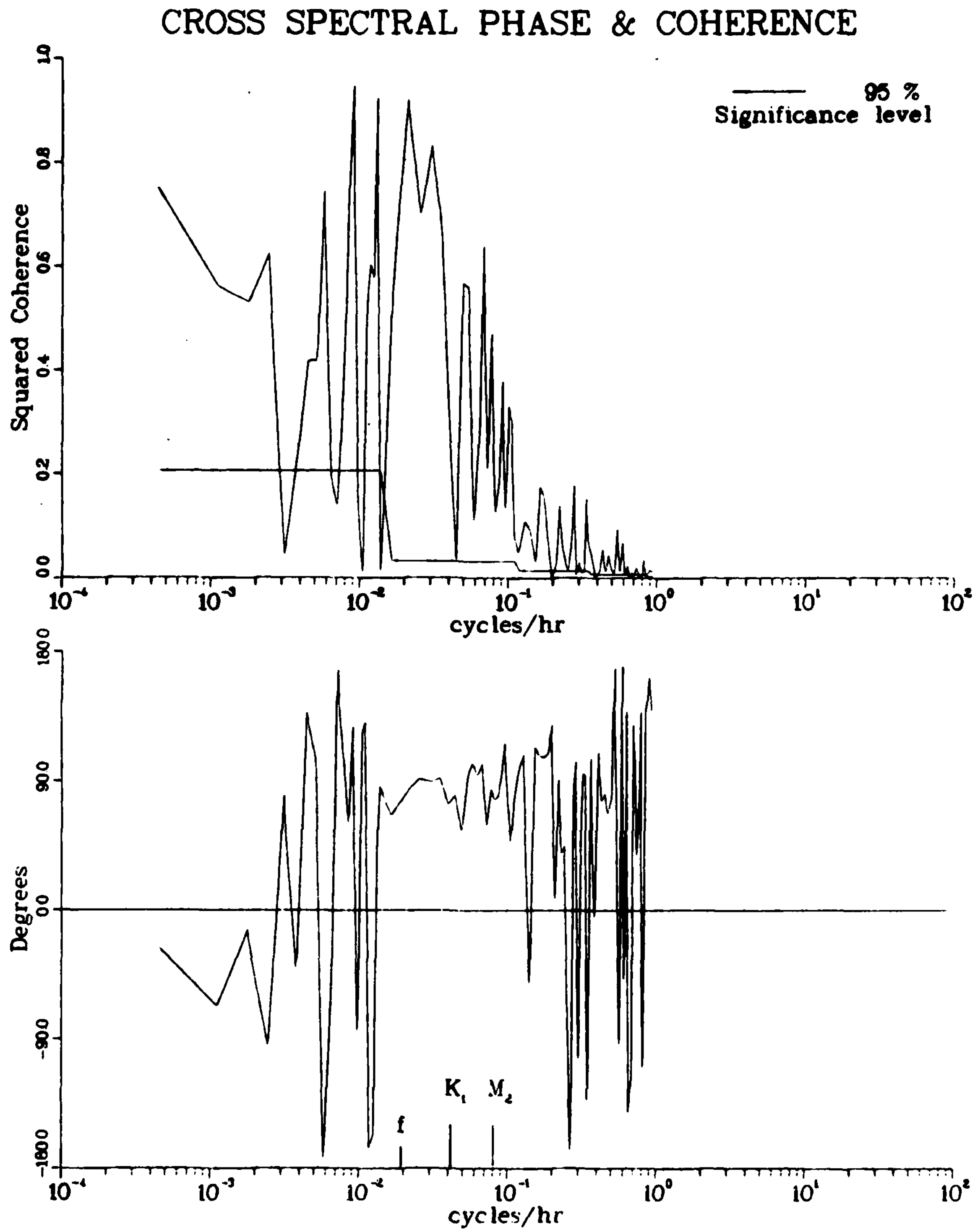


MICROCOPY RESOLUTION TEST CHART



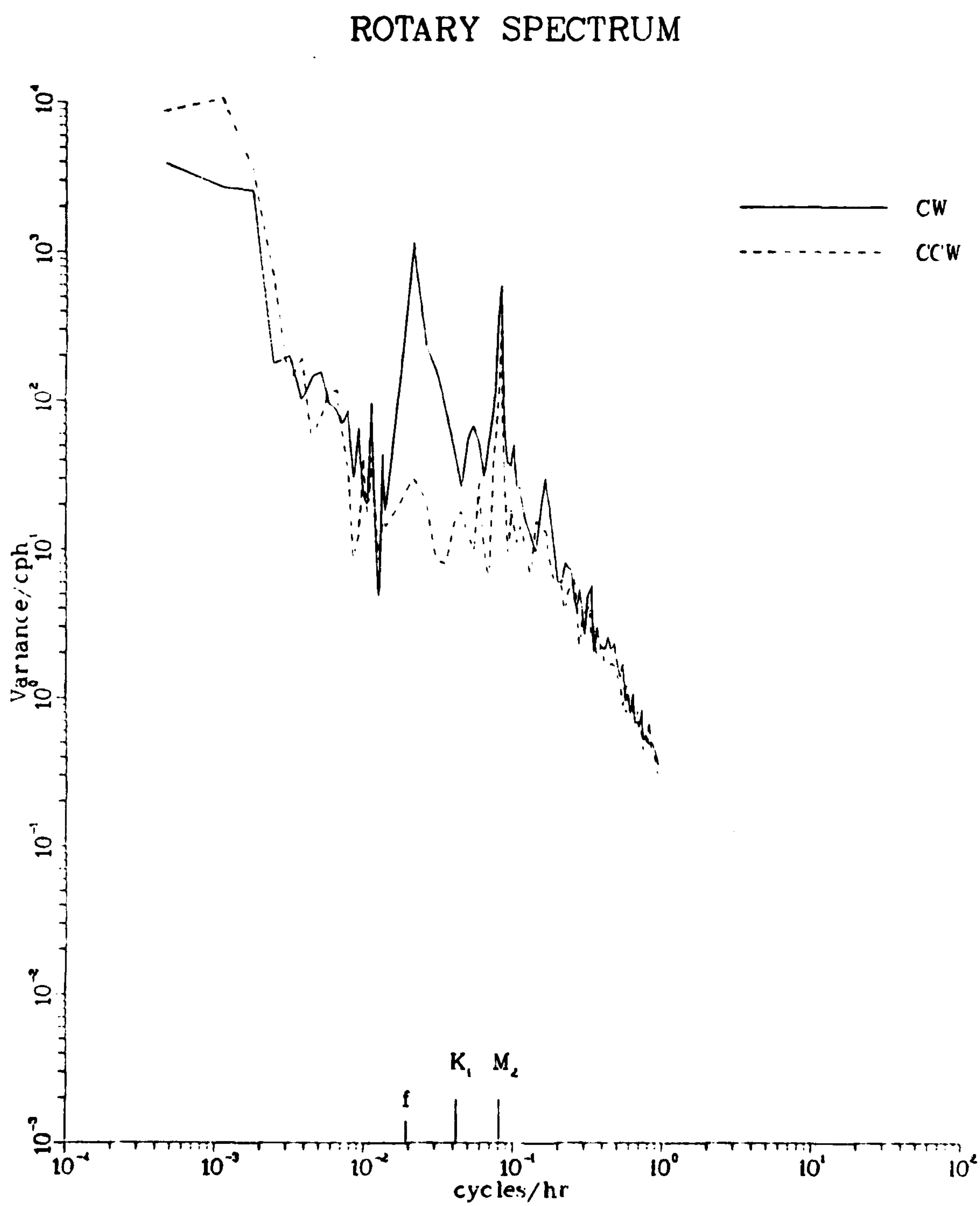
Variable V
File VACMF
Meter 417
Lat. 13 40500
Long 62 44900
Array B
Depth 793
Start 7 AUG 1978

Figure 70. Meter 417 north spectrum



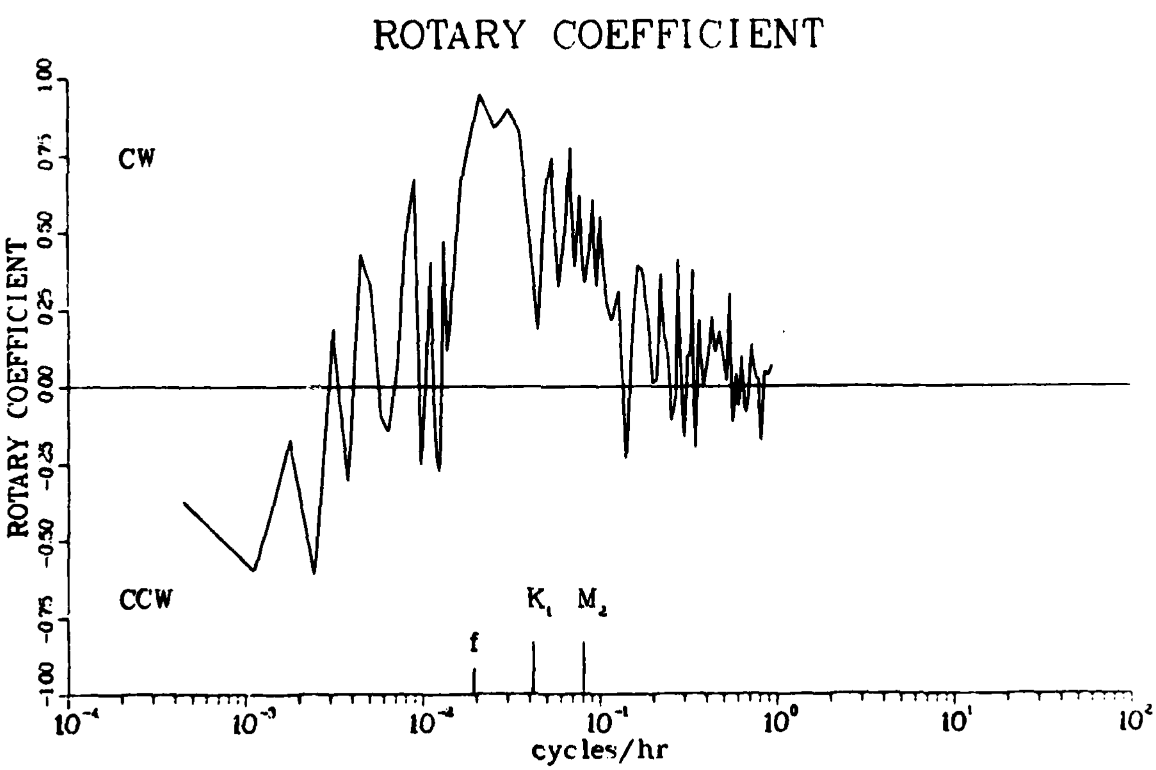
Variable	U	Variable	V
Depth	793	Depth	793
Meter	417	Meter	417
Lat	13.40500	Lat	13.40500
Long	62.44900	Long	62.44900

Figure 71. Meter 417 east-north coherence



Variable	U	Variable	V
Depth	793	Depth	793
Meter	417	Meter	417
Lat.	13 40500	Lat	13 40500
Long	62 44900	Long	62 44900

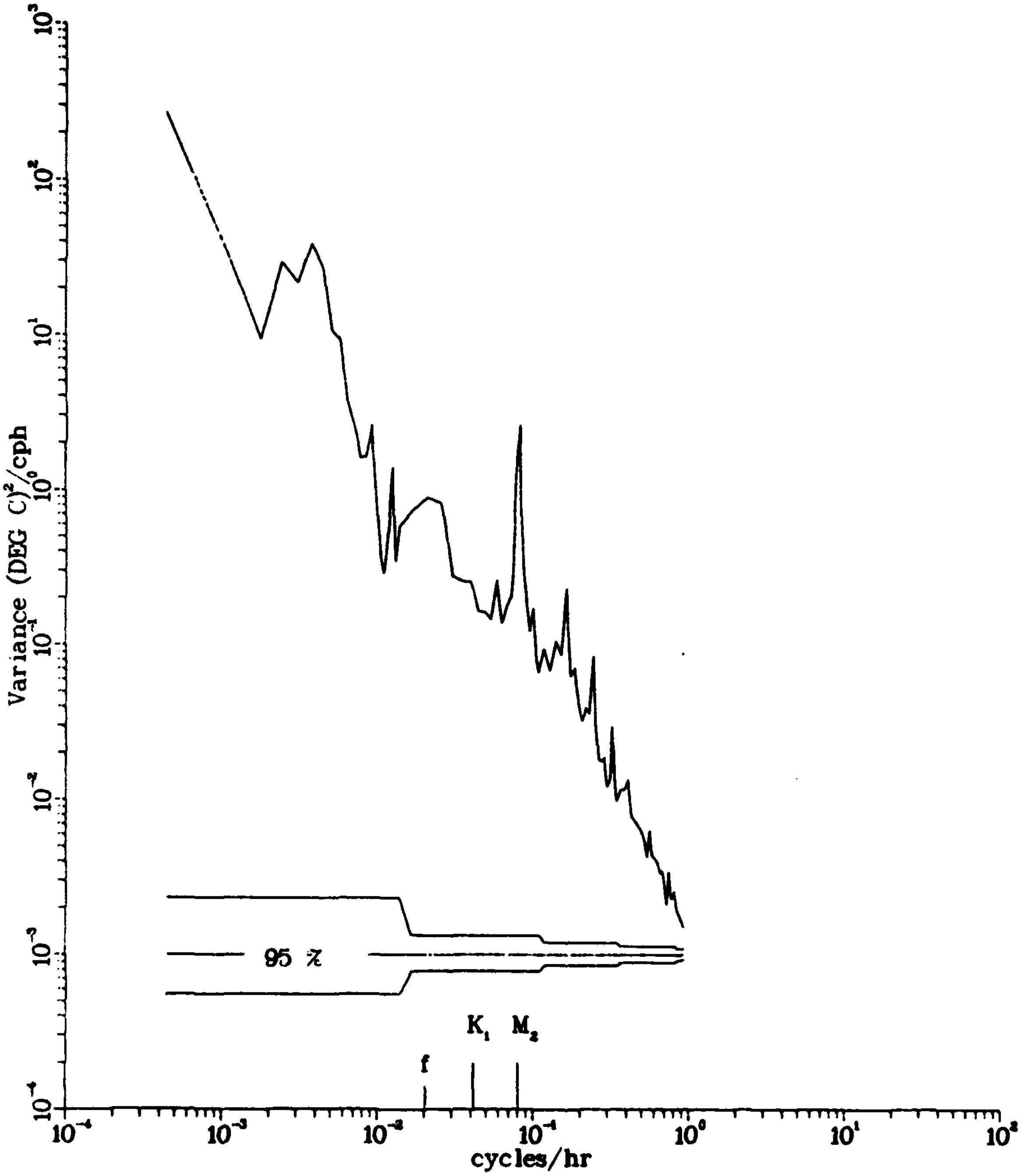
Figure 72. Meter 417 rotary spectrum



Variable : U		Variable : V	
Depth	793	Depth	793
Meter	417	Meter	417
Lat.	13.40500	Lat.	13.40500
Long	62.44900	Long	62.44900

Figure 73. Meter 417 rotary coefficient

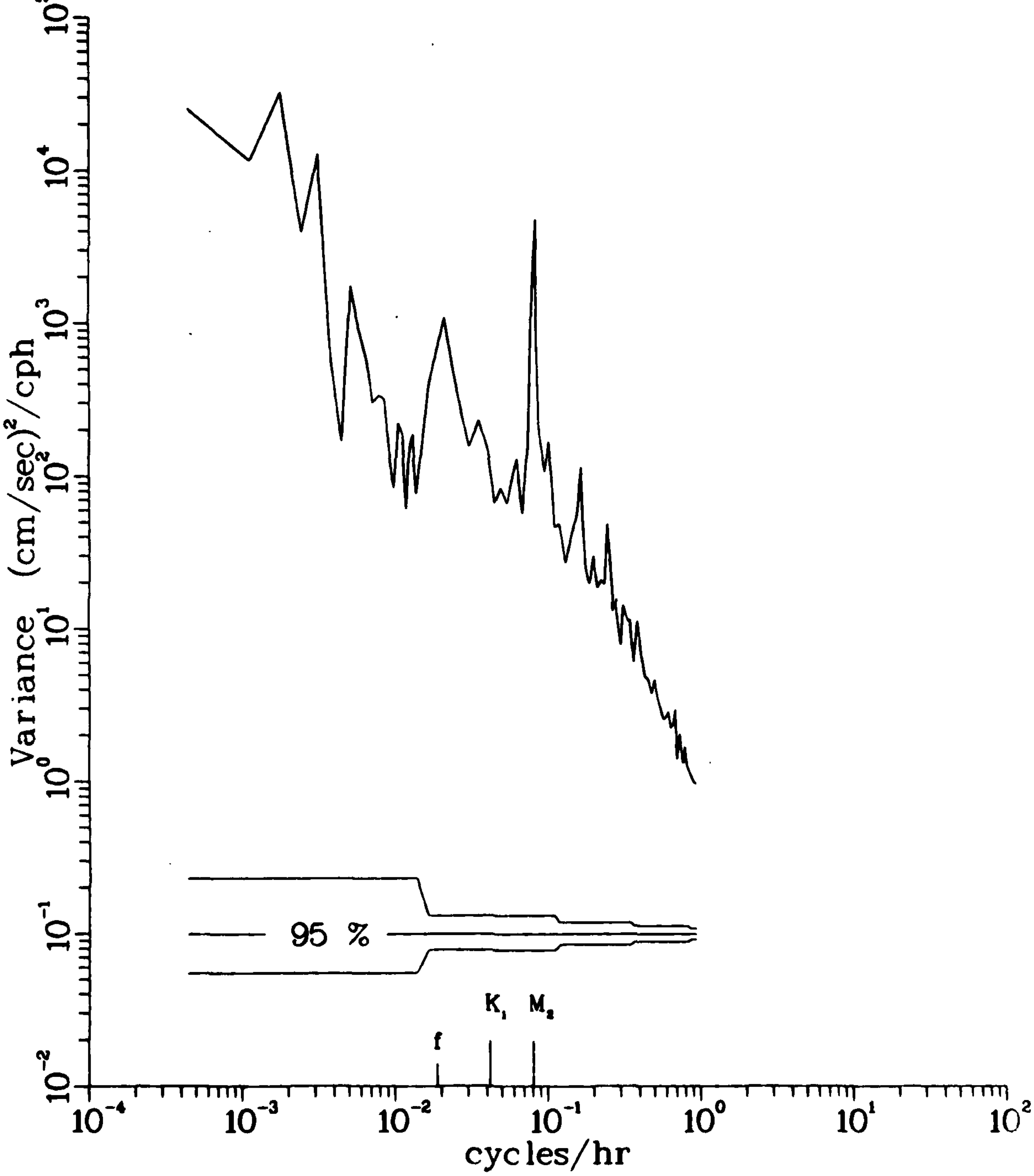
TEMPERATURE SPECTRUM



Variable :	T	Array	A
File :	VACMF	Depth .	793
Meter .	412	Start .	6 AUG 1978
Lat. .	14.17300	End .	8 FEB 1979
Long	62.54450		

Figure 74. Meter 417 temperature spectrum

CURRENT SPECTRUM



Variable : U
File : VACMF
Meter : 300
Lat. 13.08230
Long. 61.99000
Array : C
Depth : 150
Start : 8 AUG 1978
End : 10 FEB 1979

Figure 75. Meter 300 east spectrum

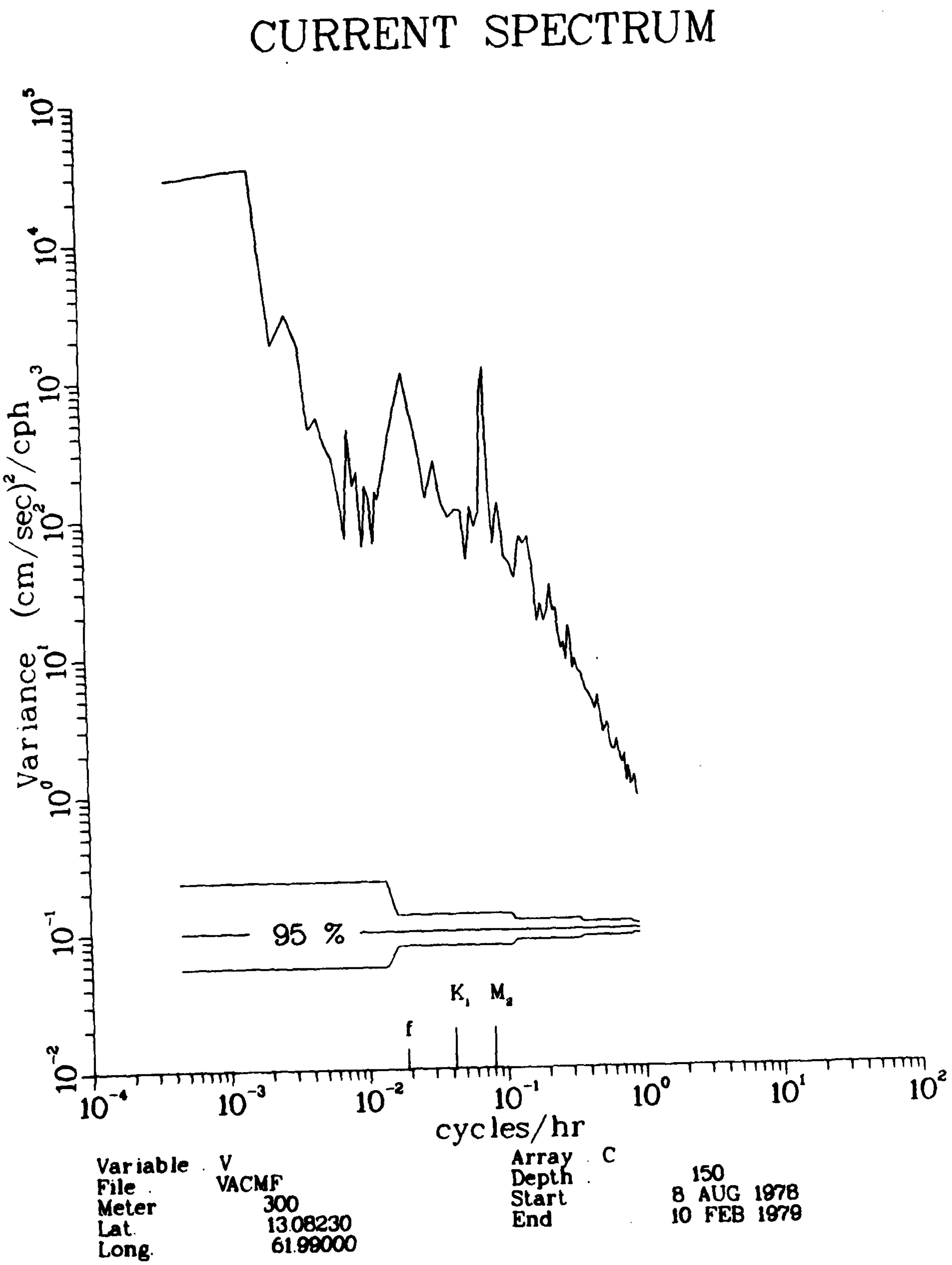
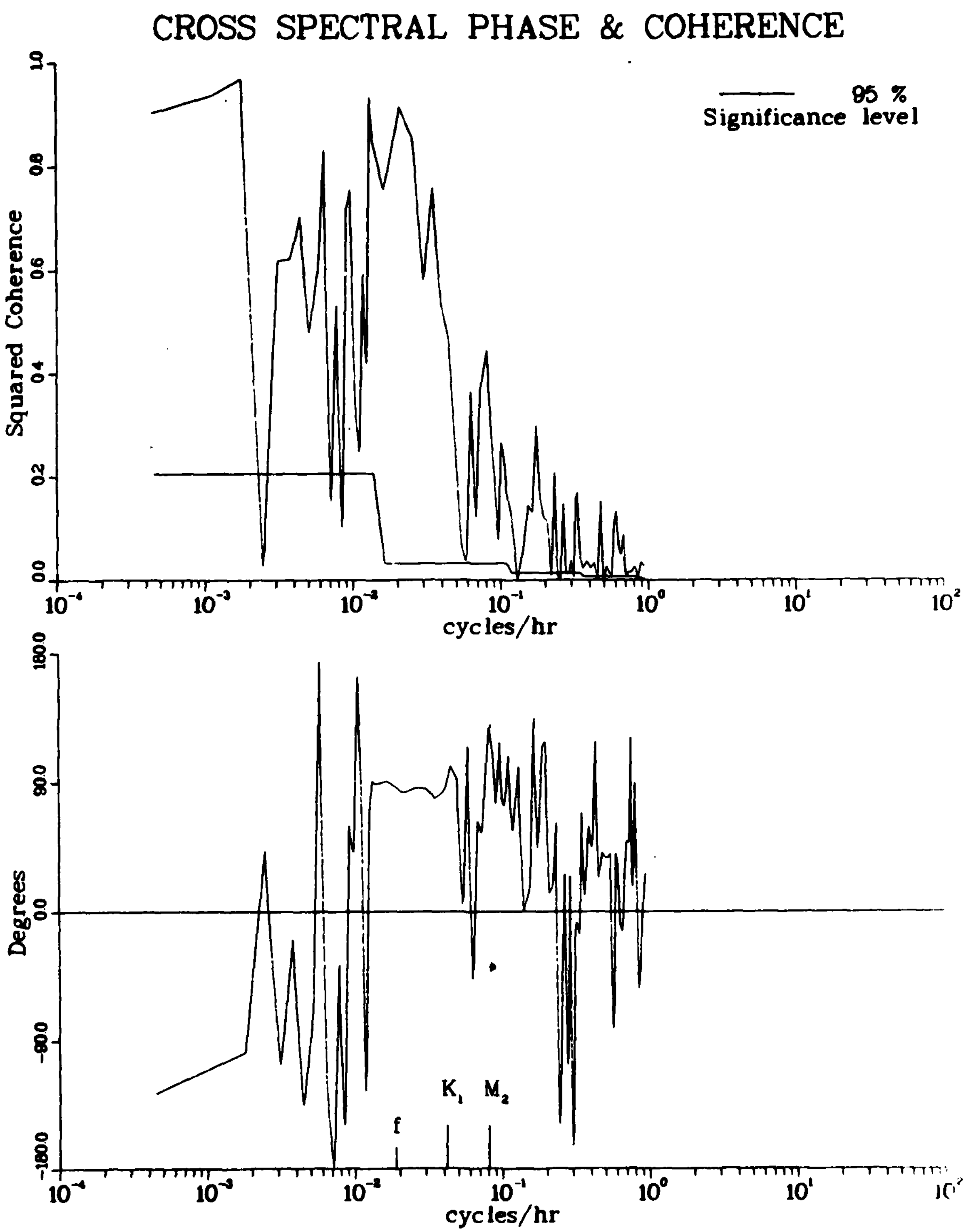
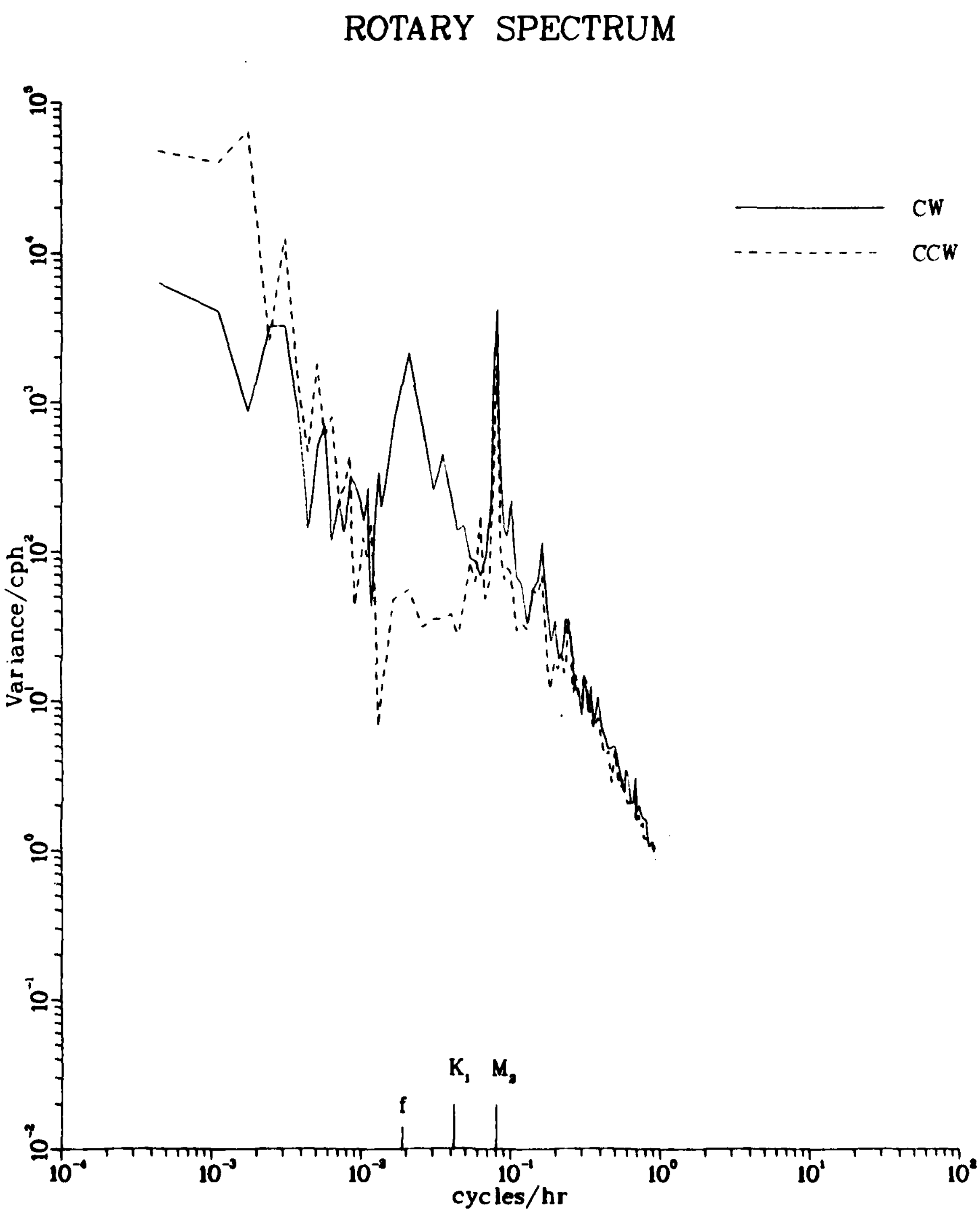


Figure 76. Meter 300 north spectrum



Variable : U		Variable : V	
Depth :	150	Depth :	150
Meter :	300	Meter :	300
Lat	13.08230	Lat	13.08230
Long.	61.99000	Long.	61.99000

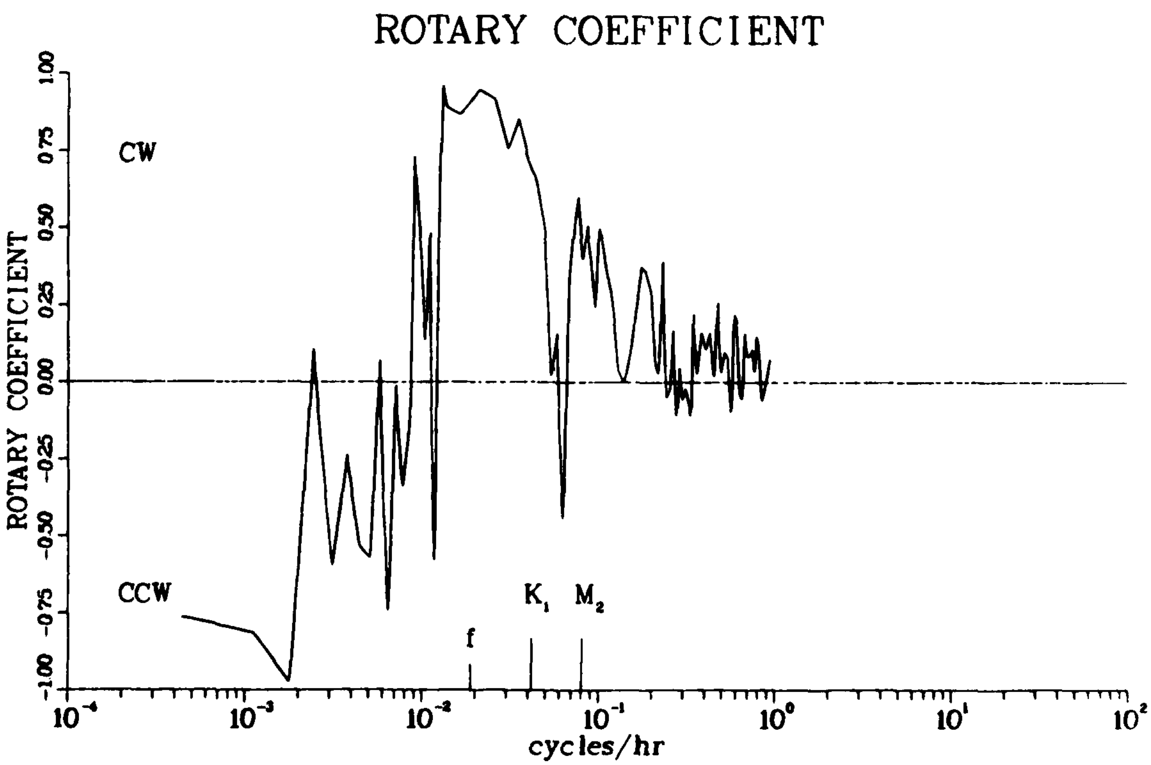
Figure 77. Meter 300 east-north coherence



Variable : U
Depth : 150
Meter 300
Lat 13.08230
Long 61.99000

Variable : V
Depth : 150
Meter 300
Lat 13.08230
Long 61.99000

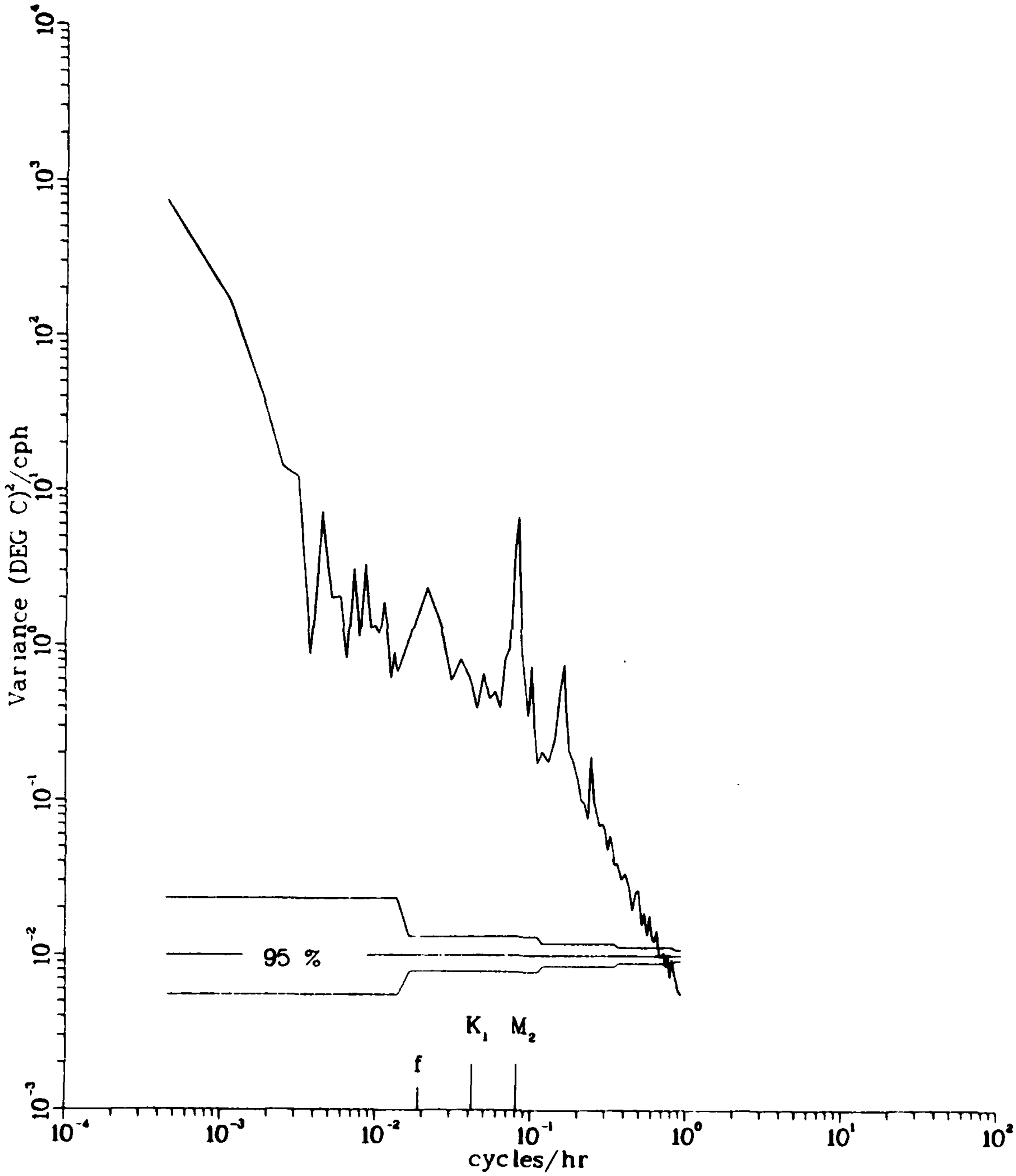
Figure 78. Meter 300 rotary spectrum



Variable	U	Variable	V
Depth	150	Depth	150
Meter	300	Meter	300
Lat	13.08230	Lat	13.08230
Long	61.99000	Long	61.99000

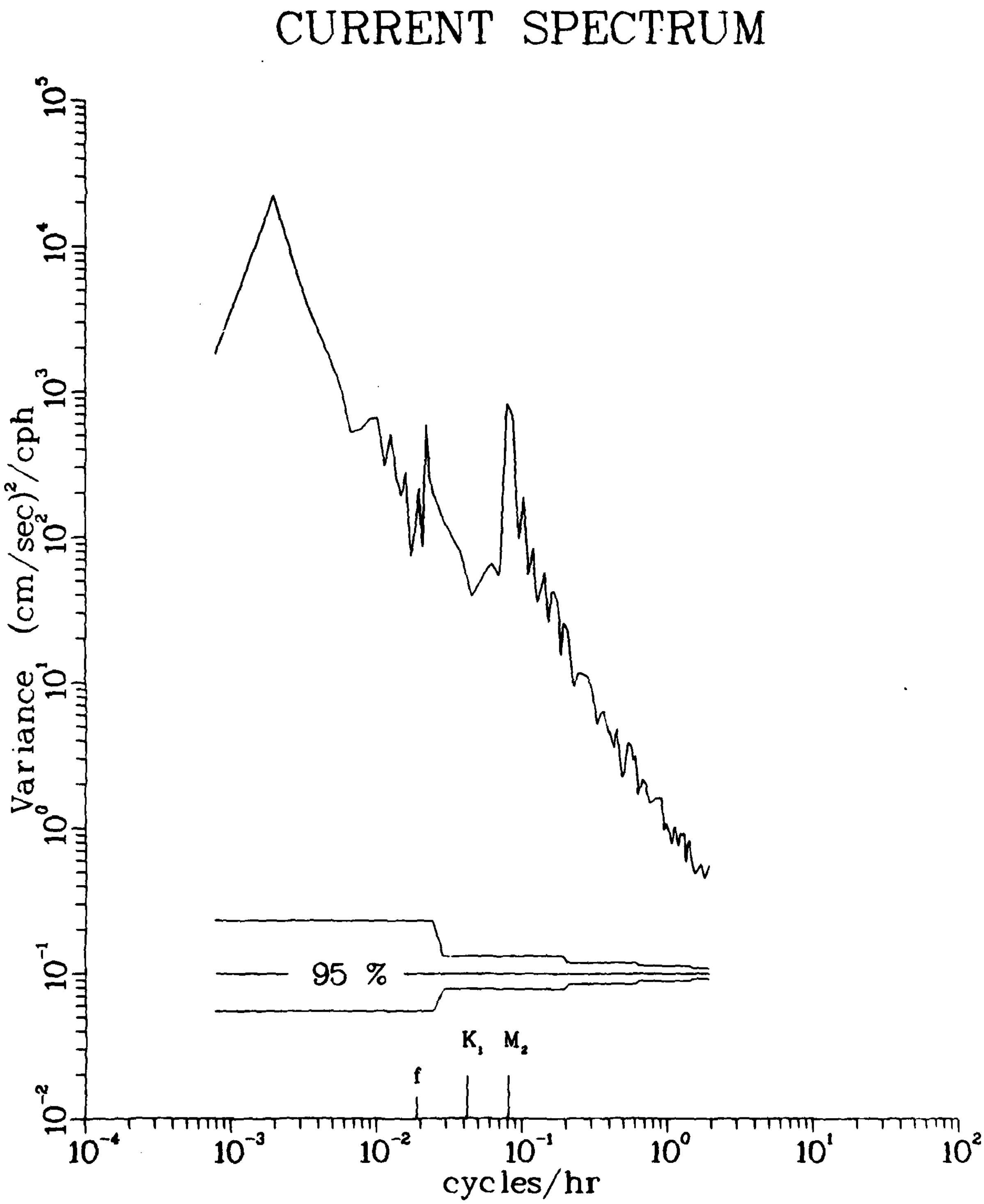
Figure 79. Meter 300 rotary coefficients

TEMPERATURE SPECTRUM



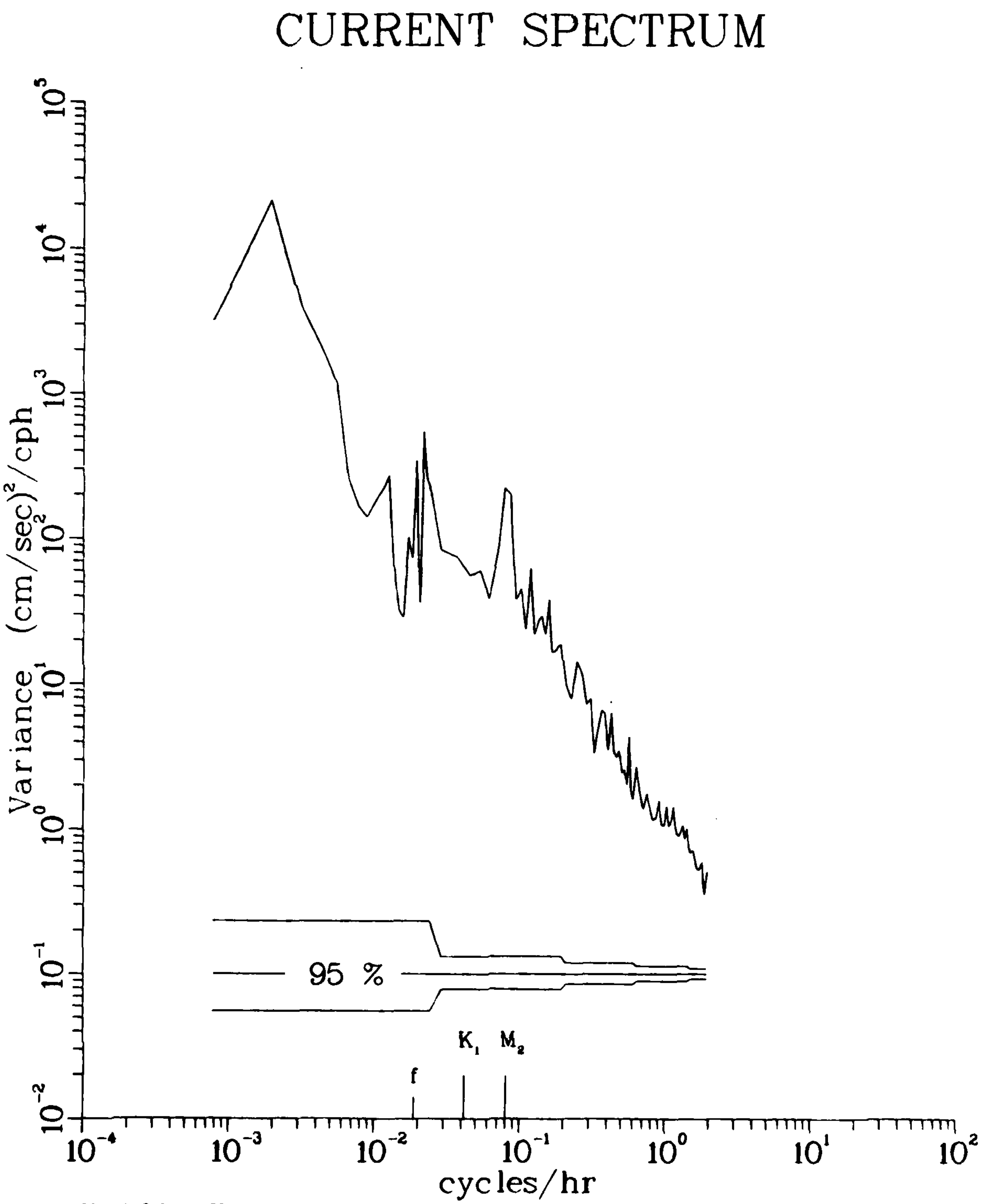
Variable	T	Array	C
File	VACMF	Depth	150
Meter	300	Start	8 AUG 1978
Lat	13.08230	End	10 FEB 1979
Long	61.99000		

Figure 80. Meter 300 temperature spectrum



Variable : U
File : VACMF
Meter : 296
Lat. 13.08230
Long. 61.99000
Array : C
Depth : 350
Start 8 AUG 1978
End 22 NOV 1978

Figure 81. Meter 296 east spectrum



Variable	V	Array	C
File	VACMF	Depth	350
Meter	296	Start	8 AUG 1978
Lat.	13.08230	End	22 NOV 1978
Long.	61.99000		

Figure 82. Meter 296 north spectrum

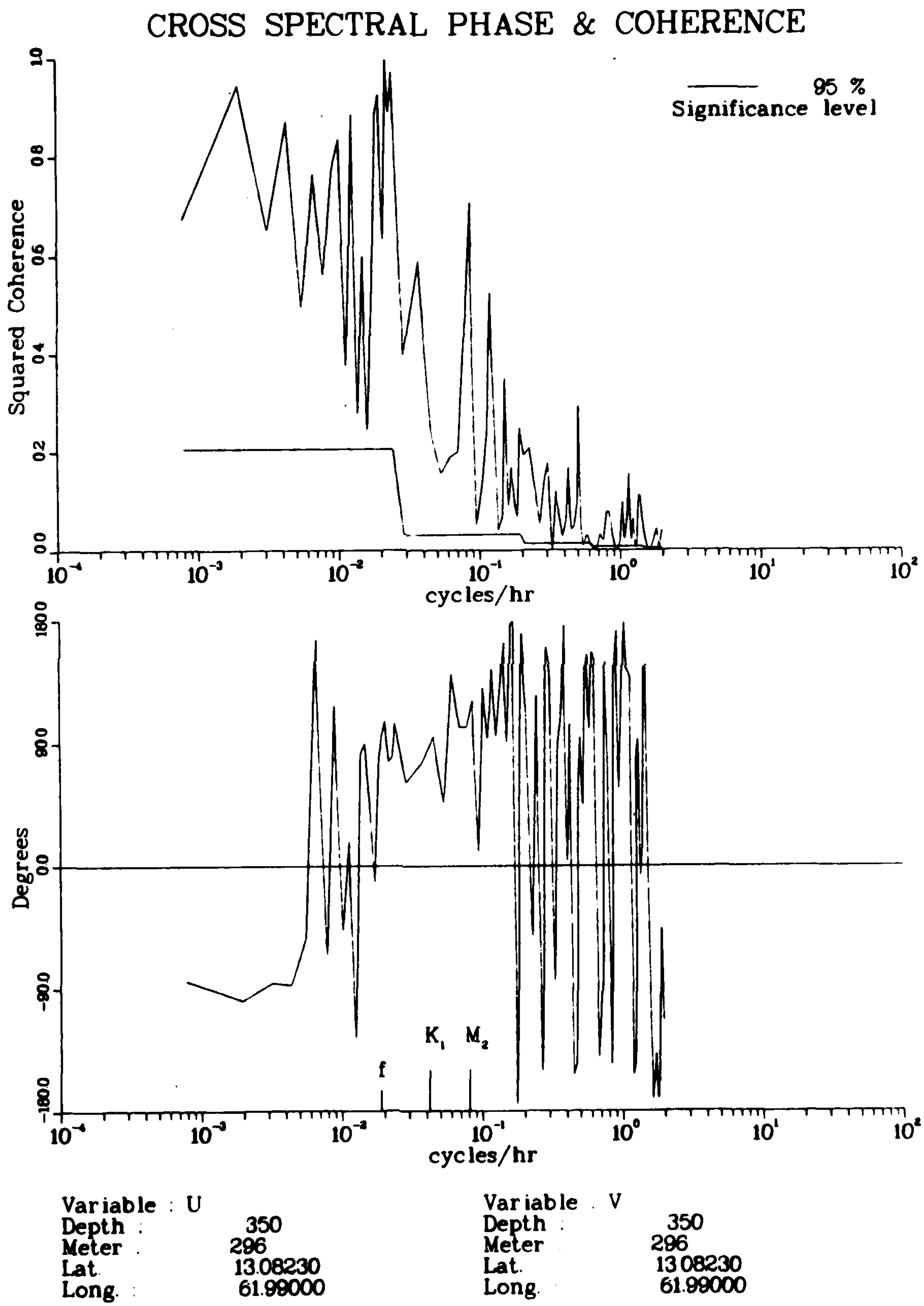
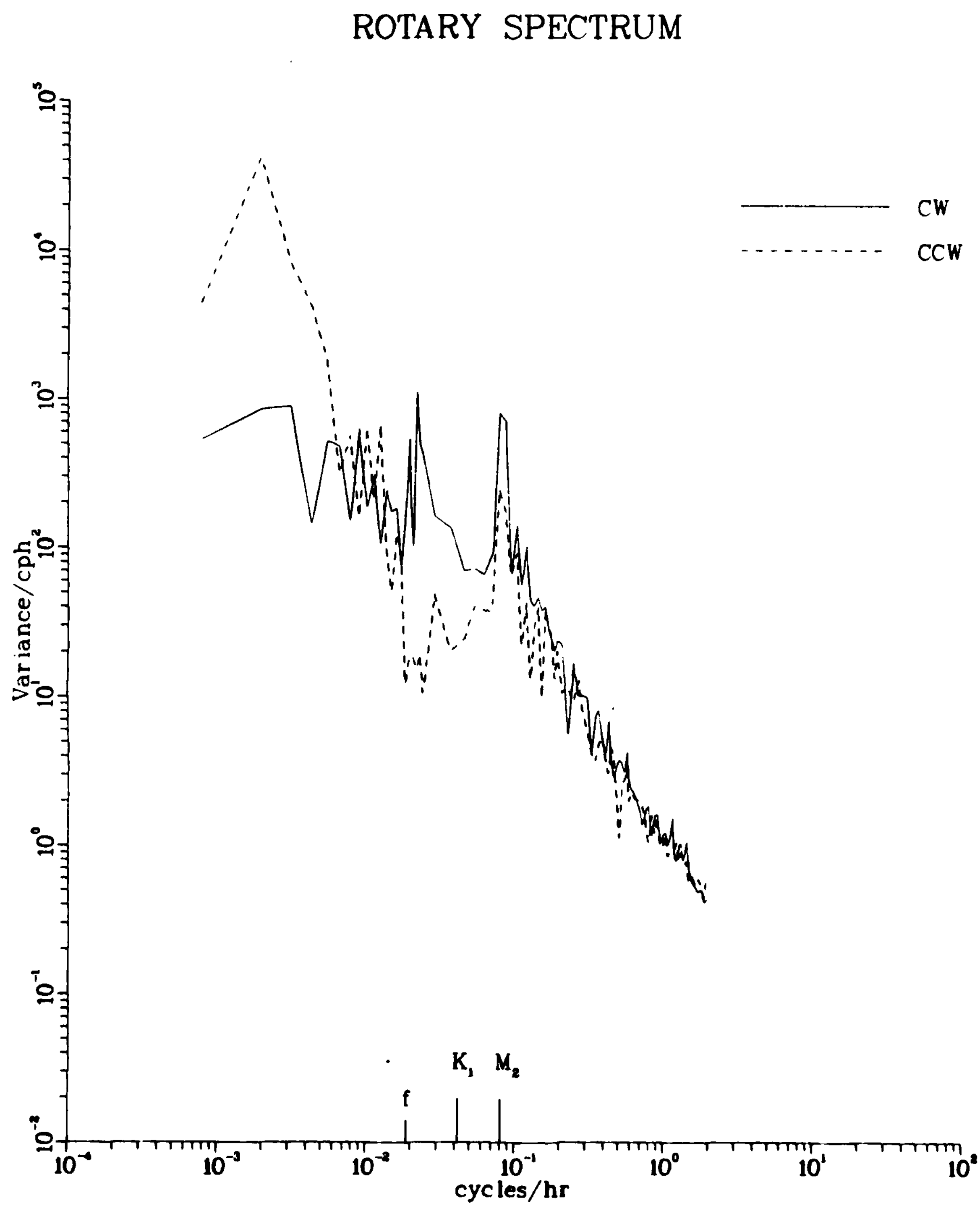


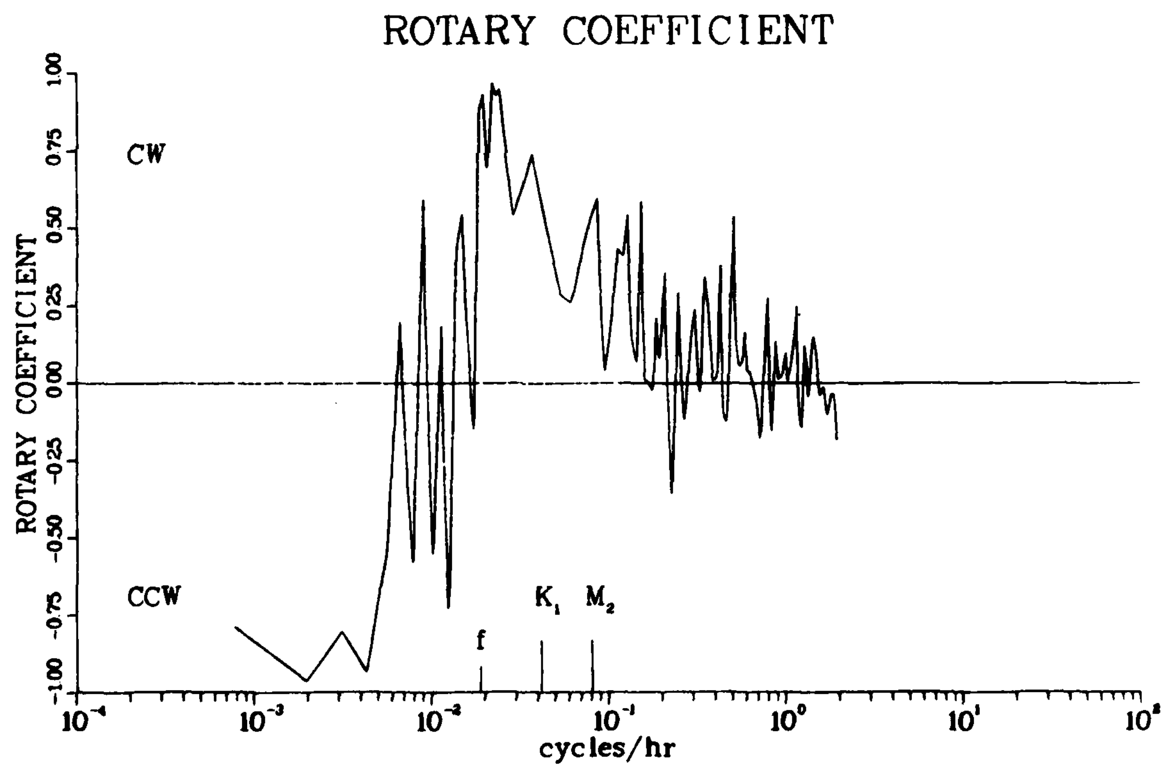
Figure 83. Meter 296 east-north coherence



Variable U
Depth : 350
Meter 296
Lat 13.08230
Long. 61.99000

Variable V
Depth 350
Meter 296
Lat 13.08230
Long. 61.99000

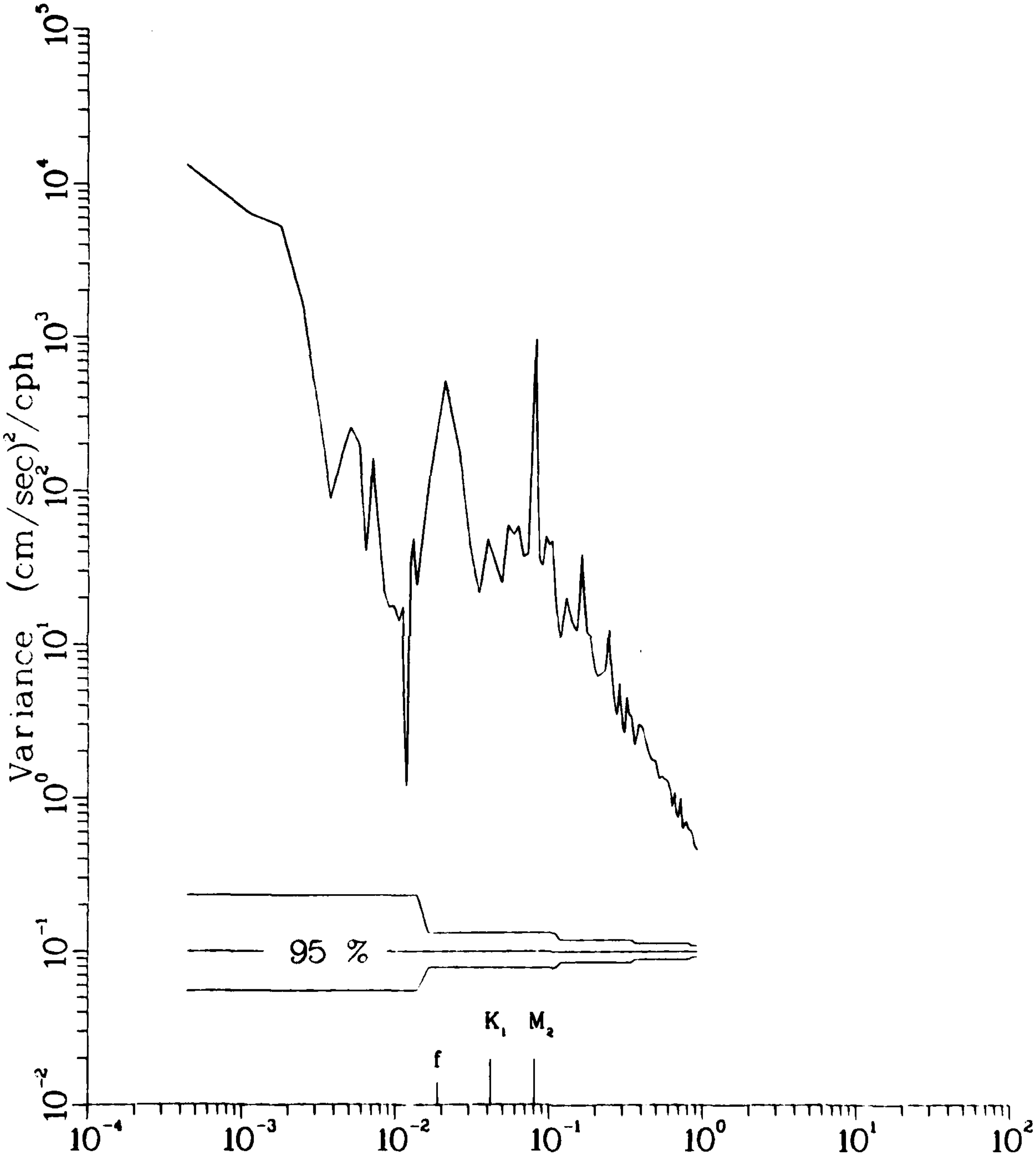
Figure 84. Meter 296 rotary spectrum



Variable .	U	Variable .	V
Depth :	350	Depth .	350
Meter .	296	Meter	296
Lat.	13.08230	Lat.	13.08230
Long.	61.99000	Long.	61.99000

Figure 85. Meter 296 rotary coefficient

CURRENT SPECTRUM



Variable U
File VACMF
Meter 410
Lat 13.08230
Long 61.99000

Array C
Depth 750
Start 8 AUG 1978
End 10 FEB 1979

Figure 86. Meter 410 east spectrum

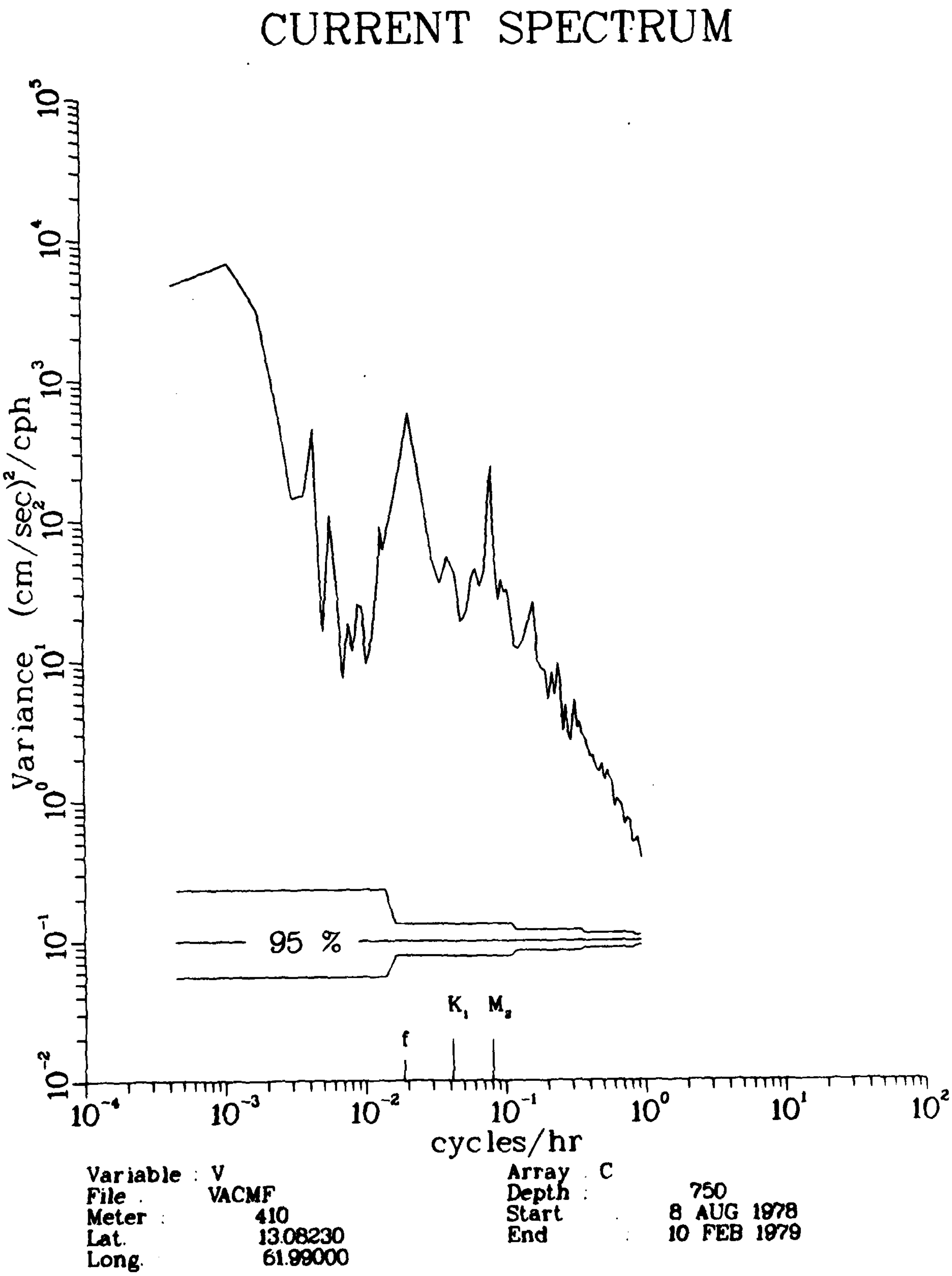
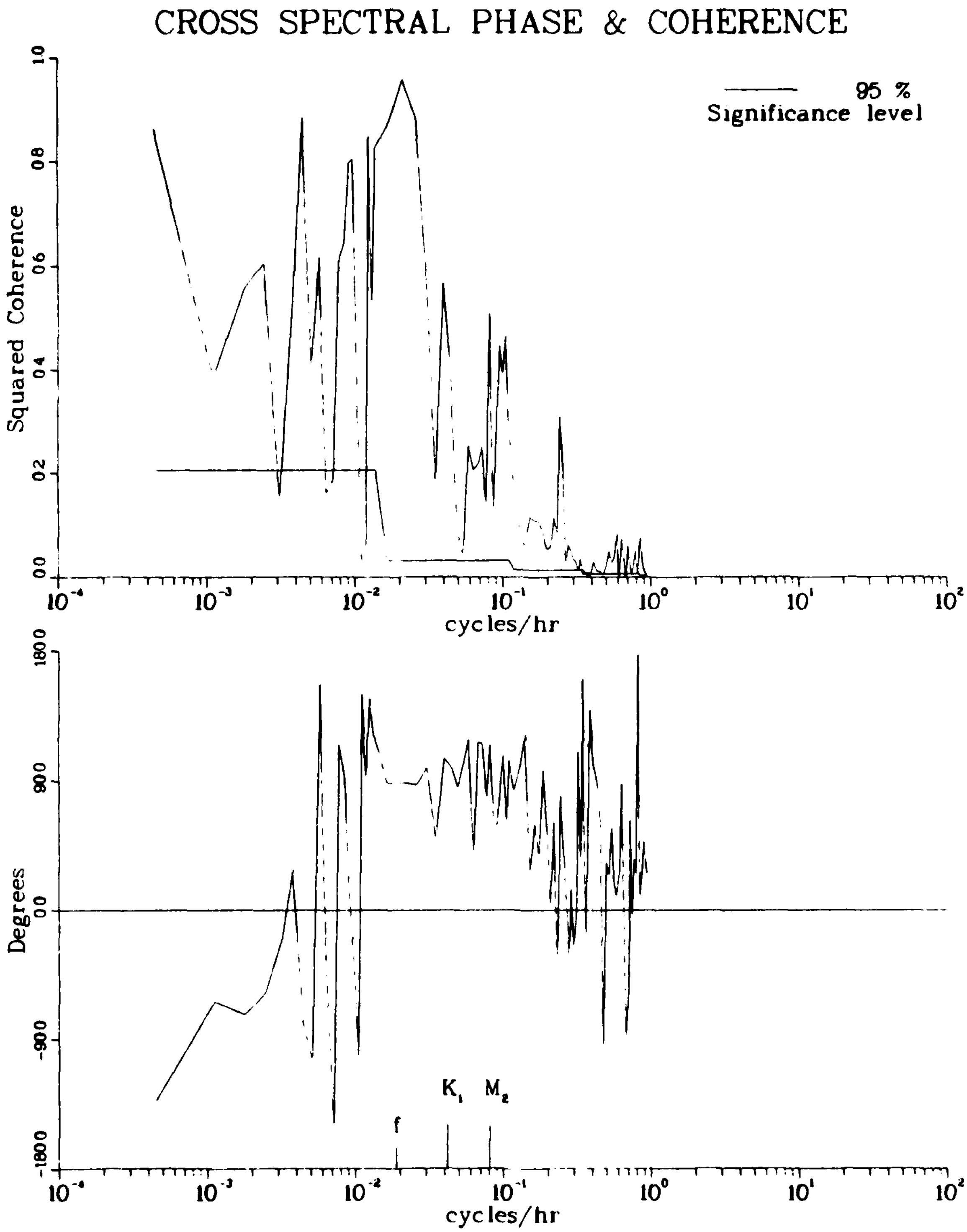


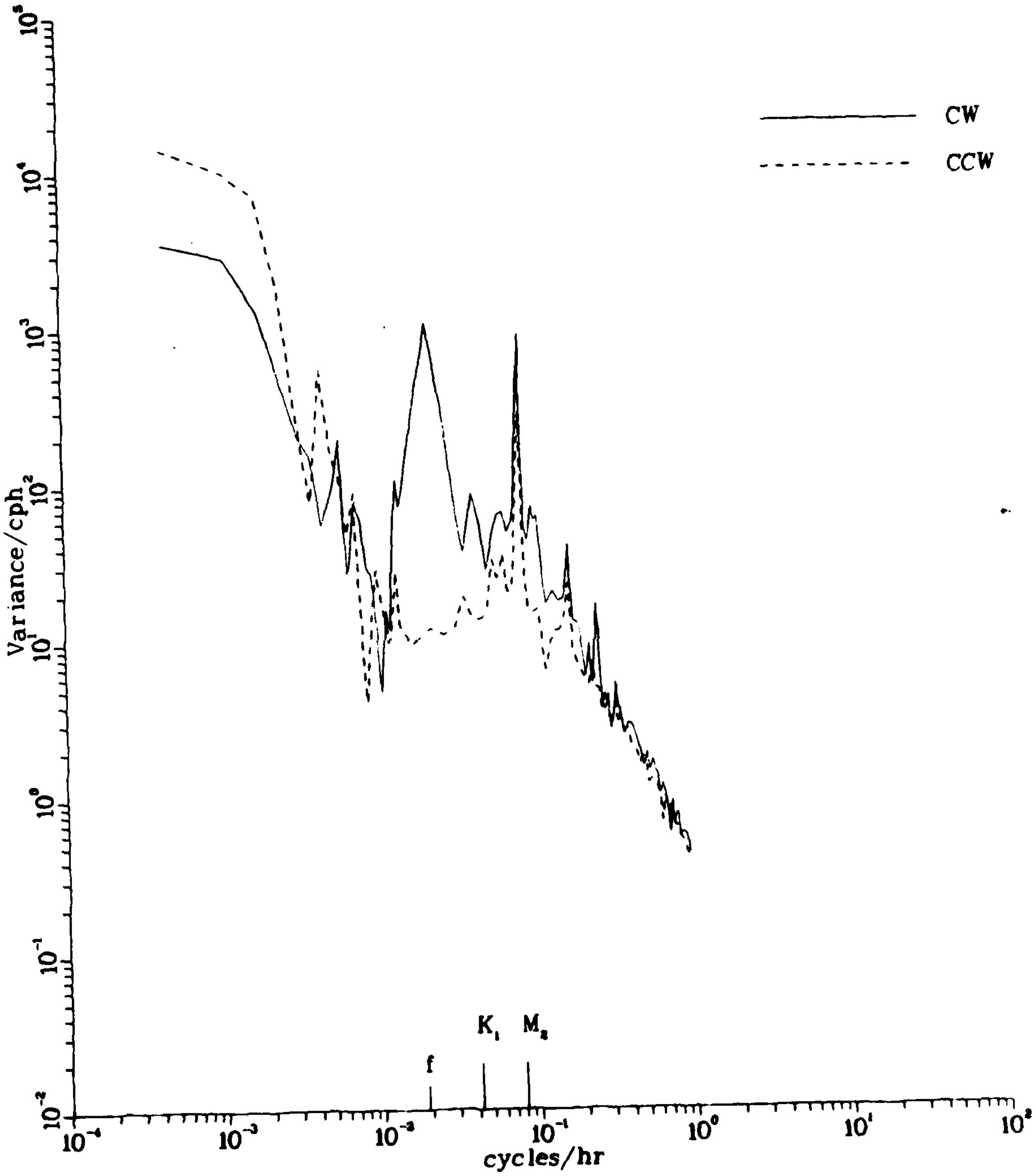
Figure 87. Meter 410 north spectrum



Variable	U	Variable	V
Depth	750	Depth	750
Meter	410	Meter	410
Lat	13.08230	Lat	13.08230
Long	61.99000	Long	61.99000

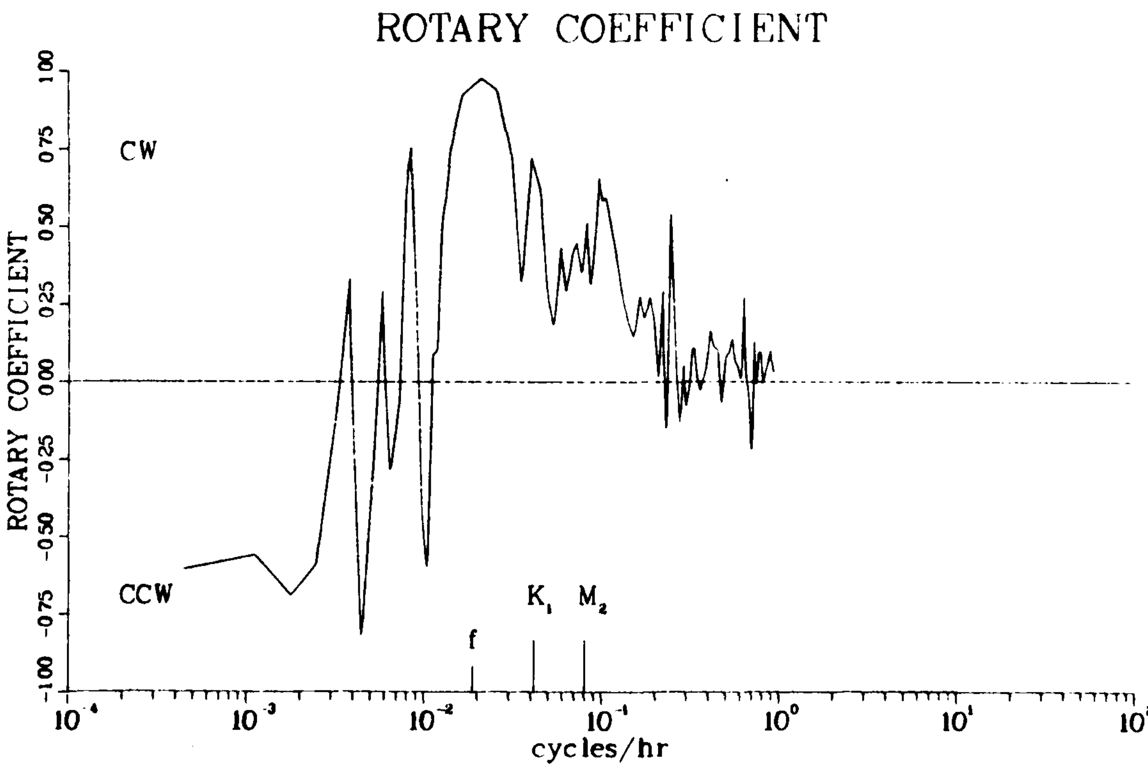
Figure 88. Meter 410 east-north coherence

ROTARY SPECTRUM



Variable : U		Variable . V	
Depth :	750	Depth :	750
Meter	410	Meter	410
Lat	13.08230	Lat	13.08230
Long.	61.99000	Long.	61.99000

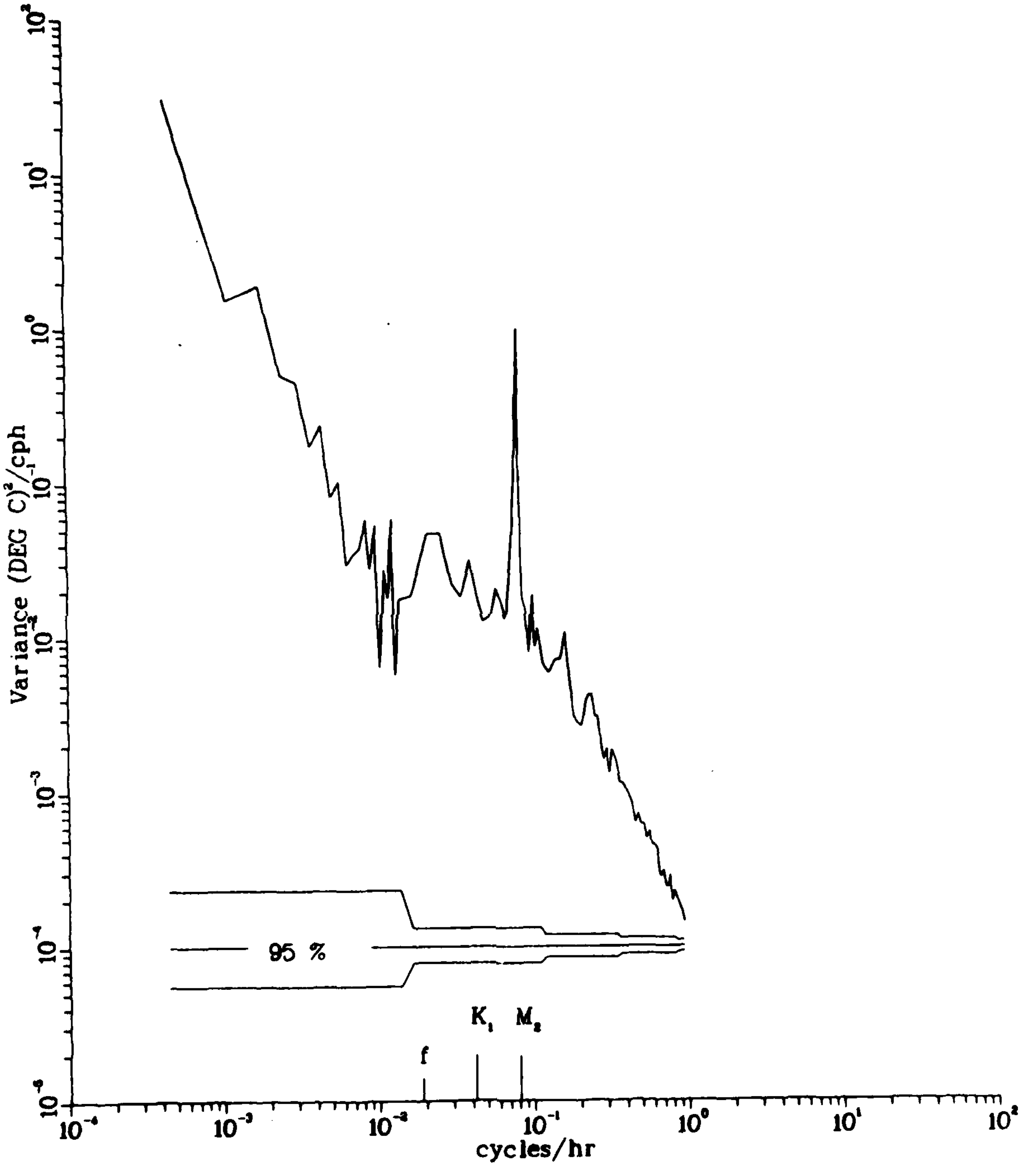
Figure 89. Meter 410 rotary spectrum



Variable	U	Variable	V
Depth	750	Depth	750
Meter	410	Meter	410
Lat	13.08230	Lat	13.08230
Long	61.99000	Long	61.99000

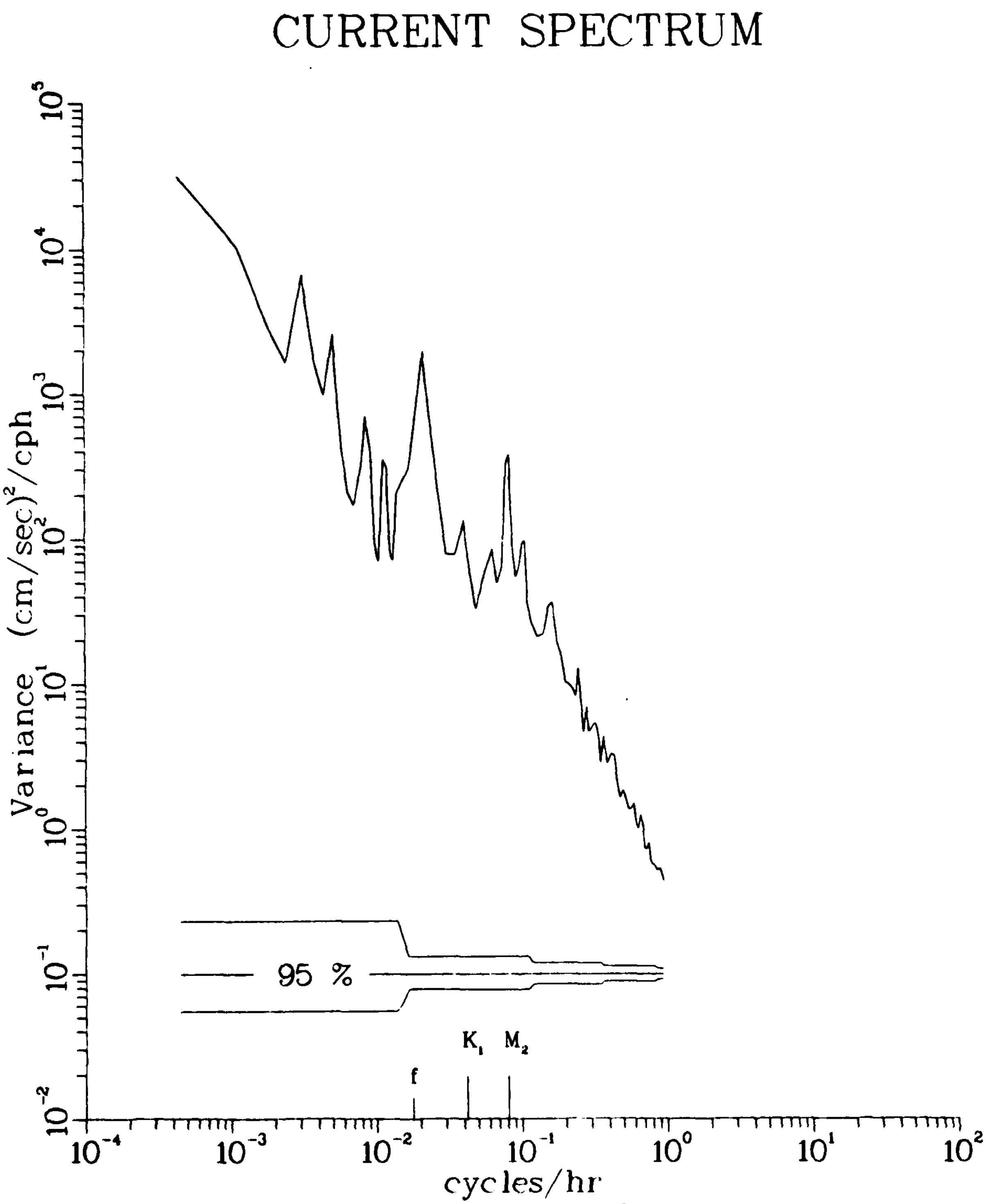
Figure 90. Meter 410 rotary coefficient

TEMPERATURE SPECTRUM



Variable	T	Array	C
File	VACMF	Depth	750
Meter	410	Start	8 AUG 1978
Lat	13.08230	End	10 FEB 1979
Long	61.99000		

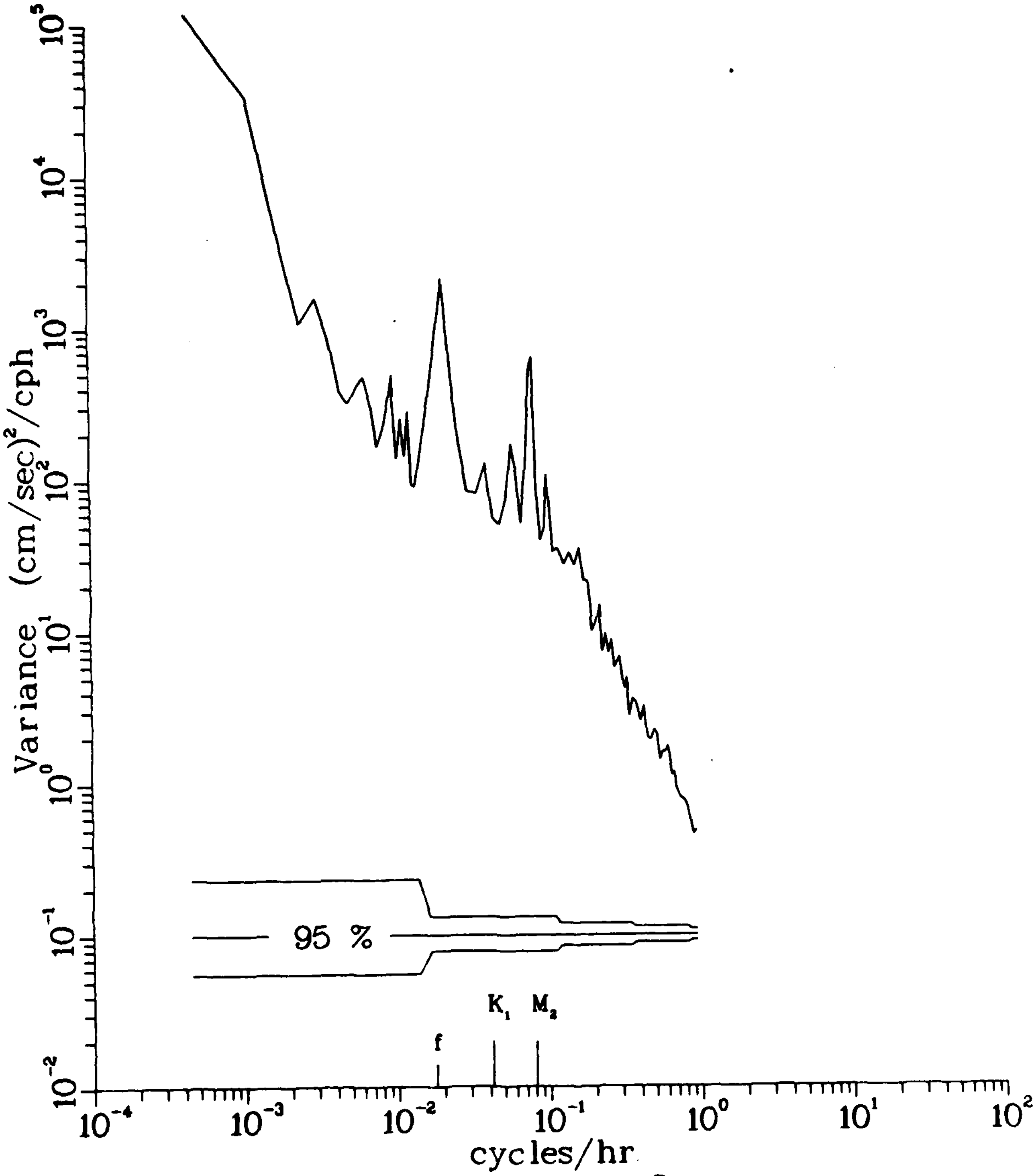
Figure 91. Meter 410 temperature spectrum



Variable	**U**	**Array**	**D**
File	**VACMF**	**Depth**	**150**
Meter	**289**	**Start**	**8 AUG 1978**
Lat	**12.33000**	**End**	**10 FEB 1979**
Long	**63.03000**		

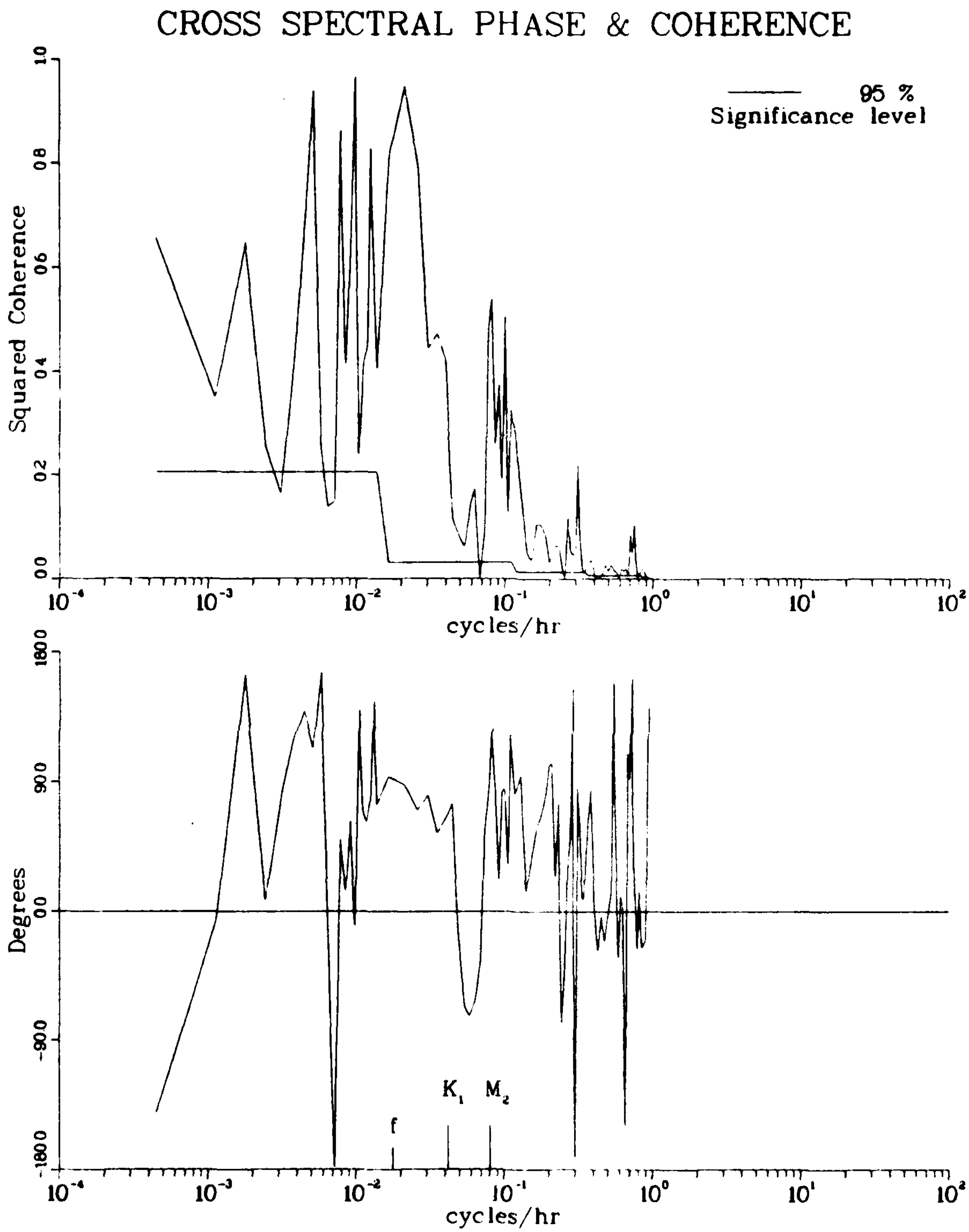
Figure 92. Meter 289 east spectrum

CURRENT SPECTRUM



Variable :	V	Array :	D
File :	VACMF	Depth :	150
Meter :	289	Start :	8 AUG 1978
Lat. :	12.33000	End :	10 FEB 1979
Long. :	63.03000		

Figure 93. Meter 289 north spectrum



Variable	U	Variable	V
Depth	150	Depth	150
Meter	289	Meter	289
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

Figure 94. Meter 289 east-north coherence

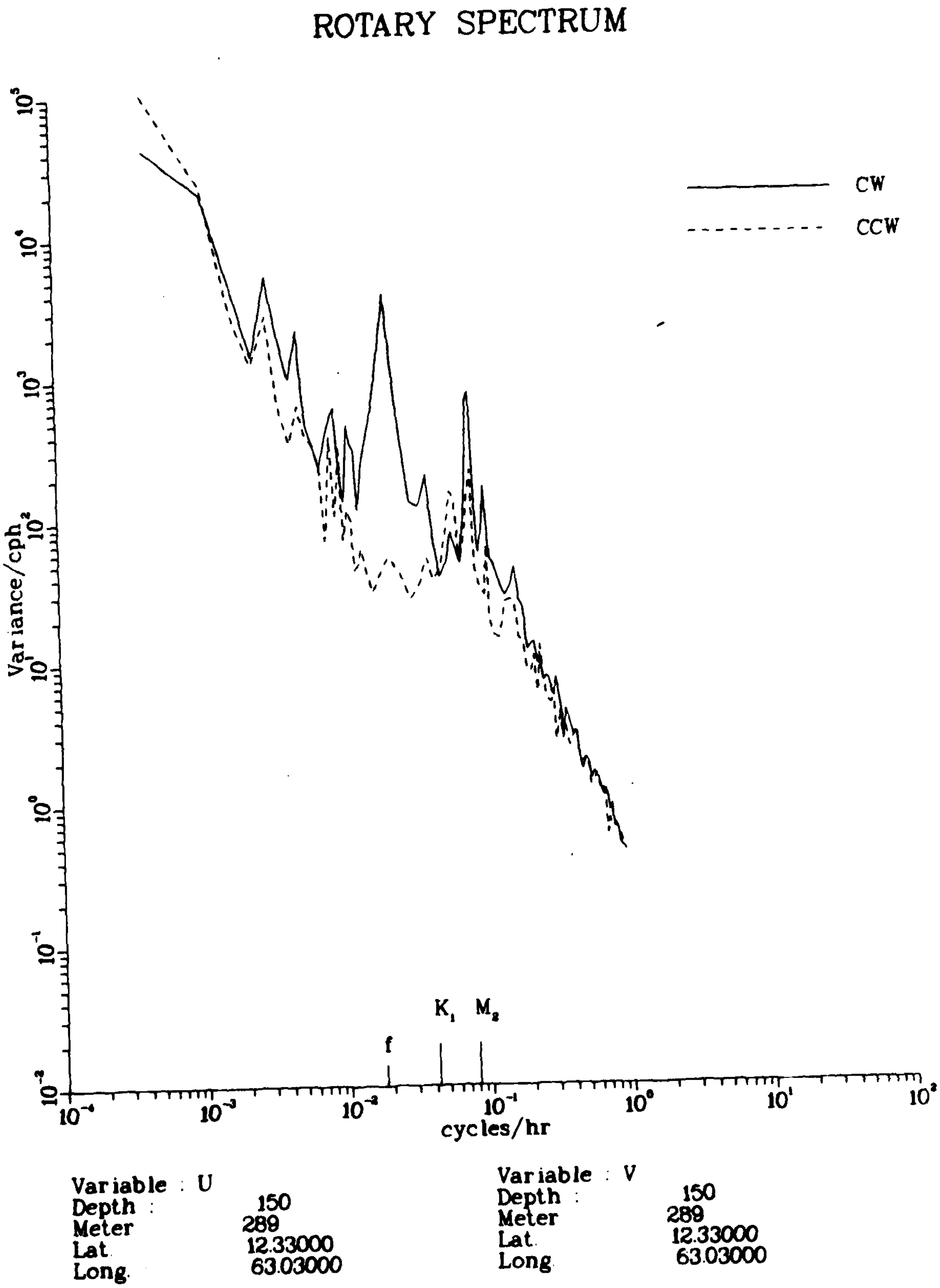
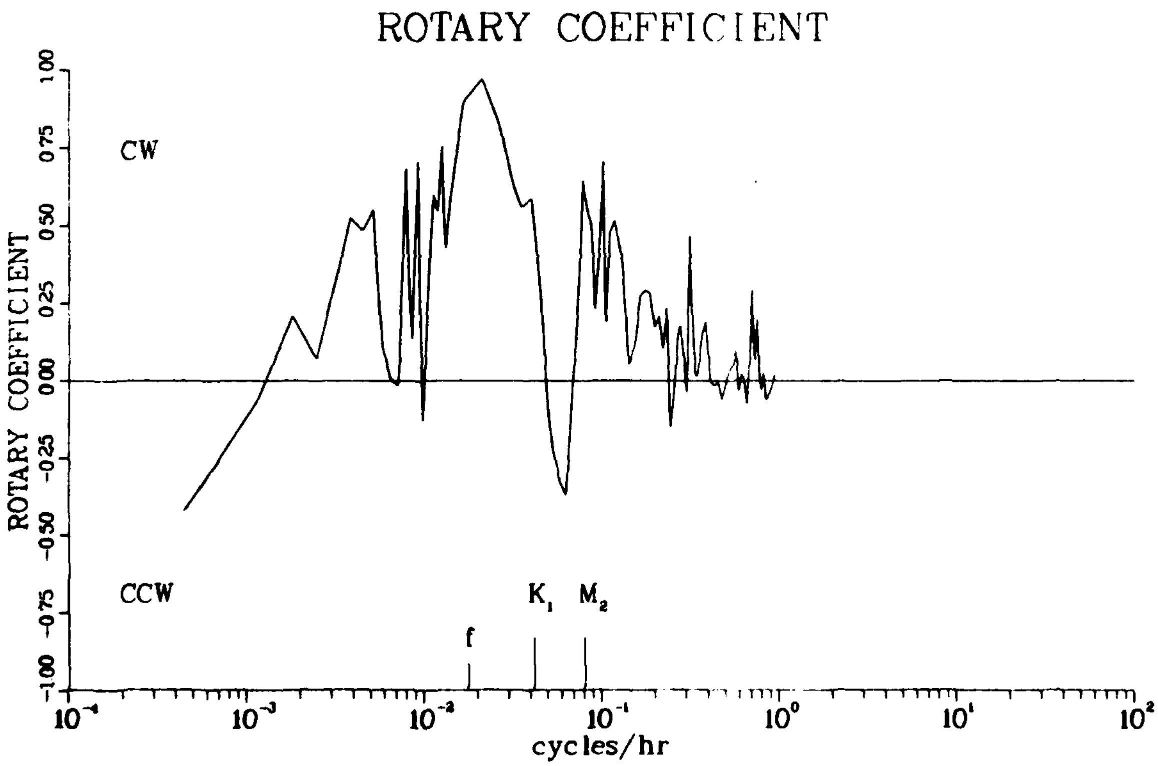


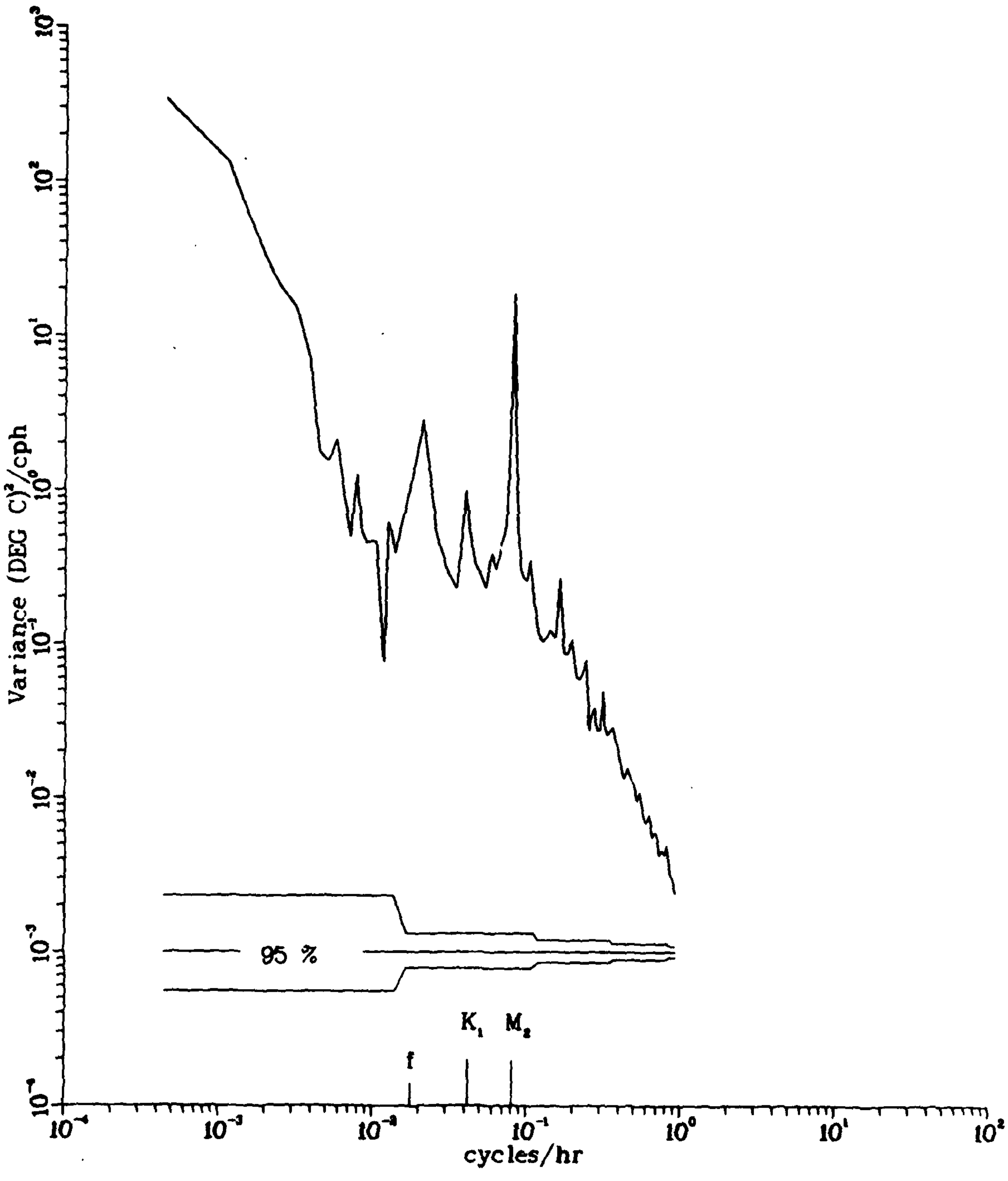
Figure 95. Meter 289 rotary spectrum



Variable	U	Variable	V
Depth	150	Depth	150
Meter	289	Meter	289
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

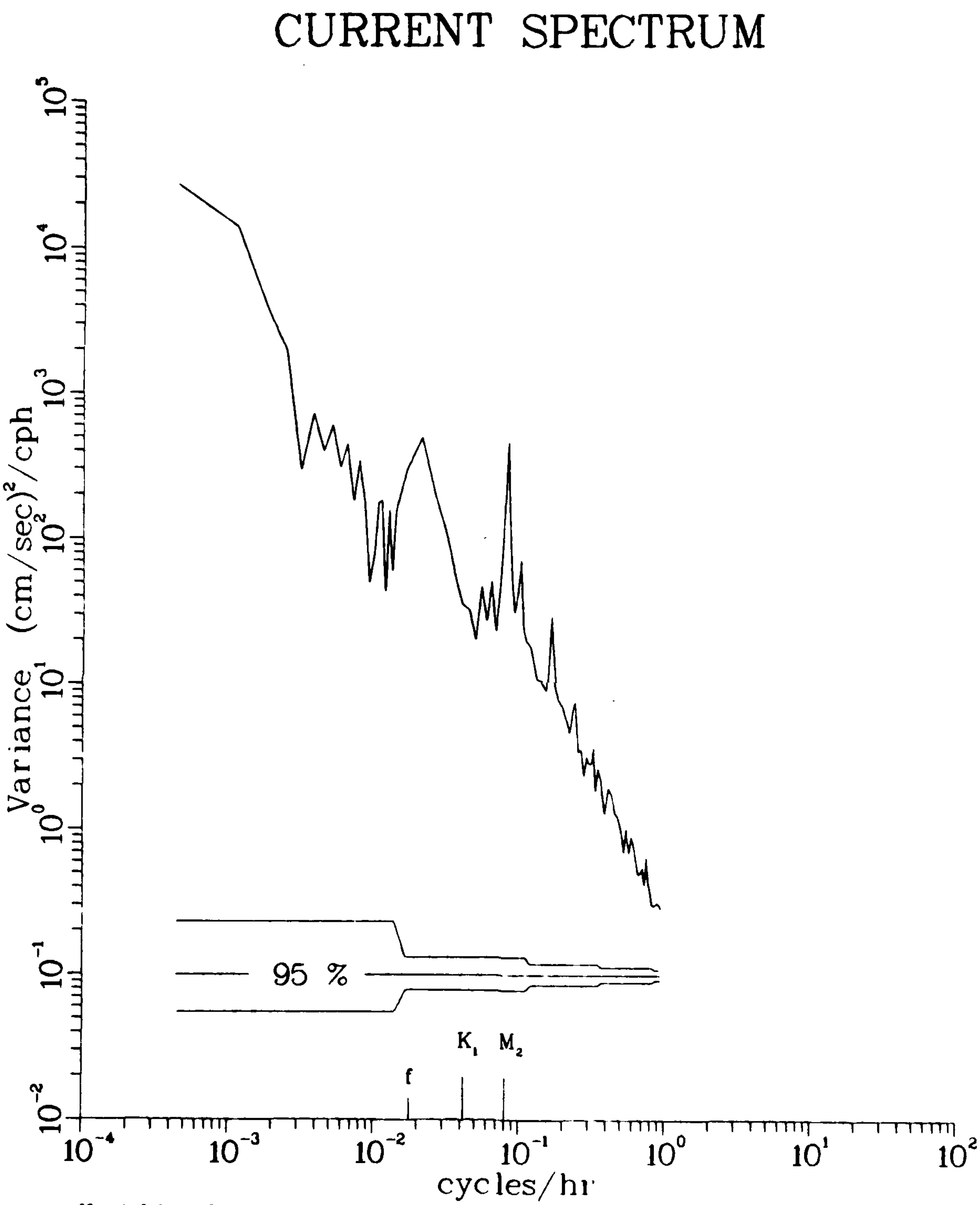
Figure 96. Meter 289 rotary coefficient

TEMPERATURE SPECTRUM



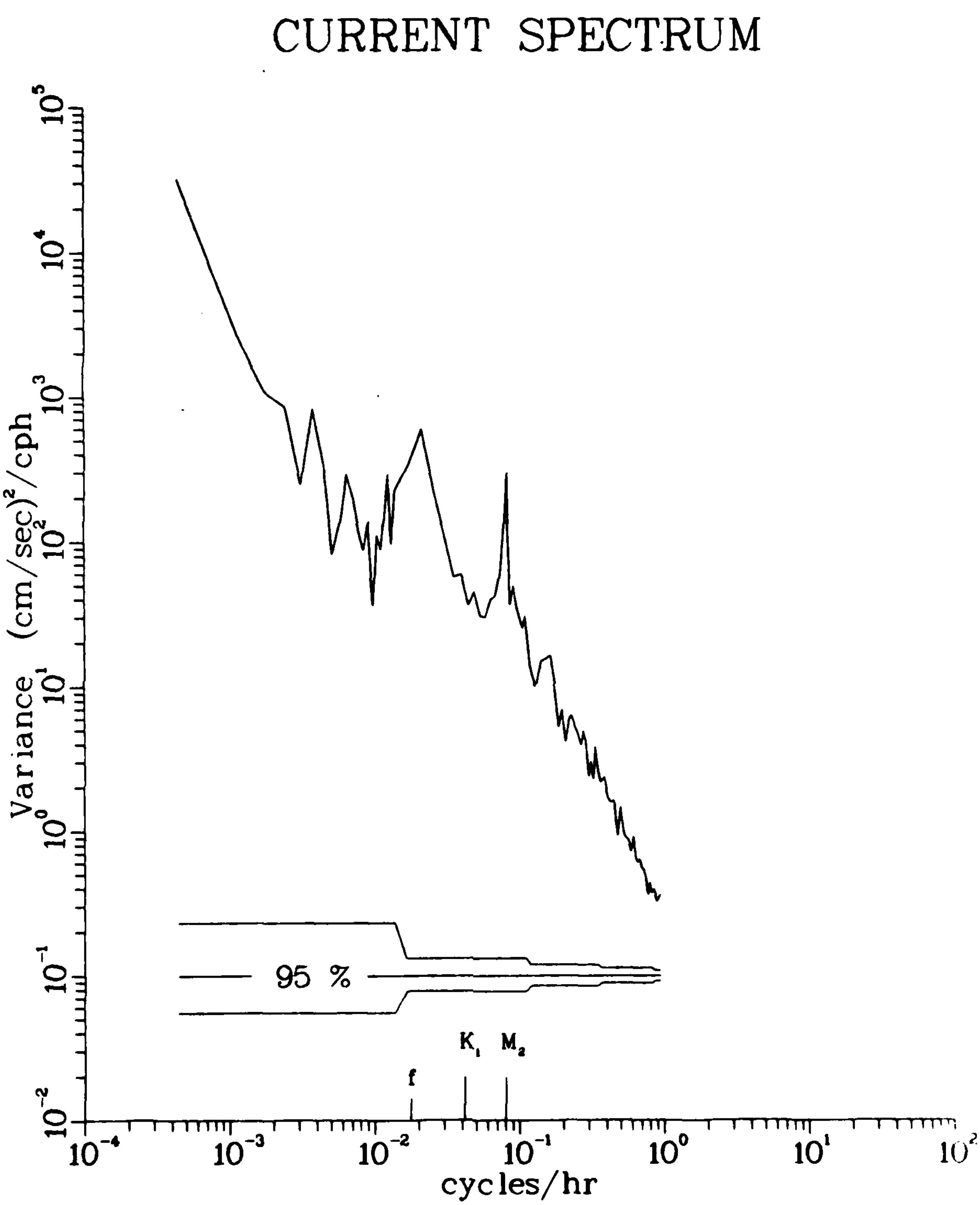
Variable	T	Array	D
File	VACMF	Depth	150
Meter	289	Start	8 AUG 1978
Lat	12.33000	End	10 FEB 1979
Long	63.03000		

Figure 97. Meter 289 rotary spectrum



Variable	U	Array	D
File	VACMF	Depth	750
Meter	407	Start	8 AUG 1978
Lat	12.33000	End	10 FEB 1979
Long	63.03000		

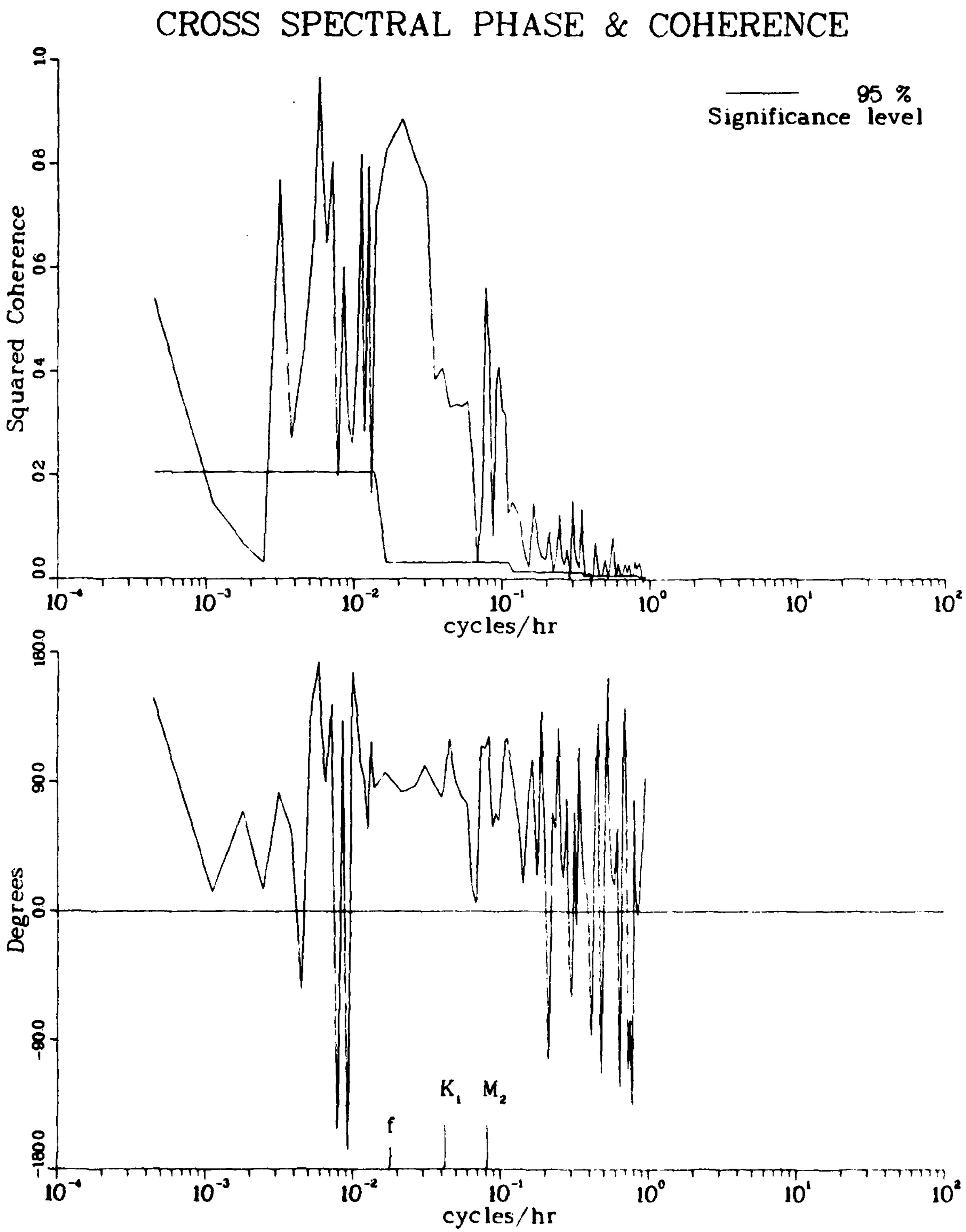
Figure 98. Meter 407 east spectrum



Variable : V
File : VACMF
Meter . 407
Lat. : 12.33000
Long. 63.03000

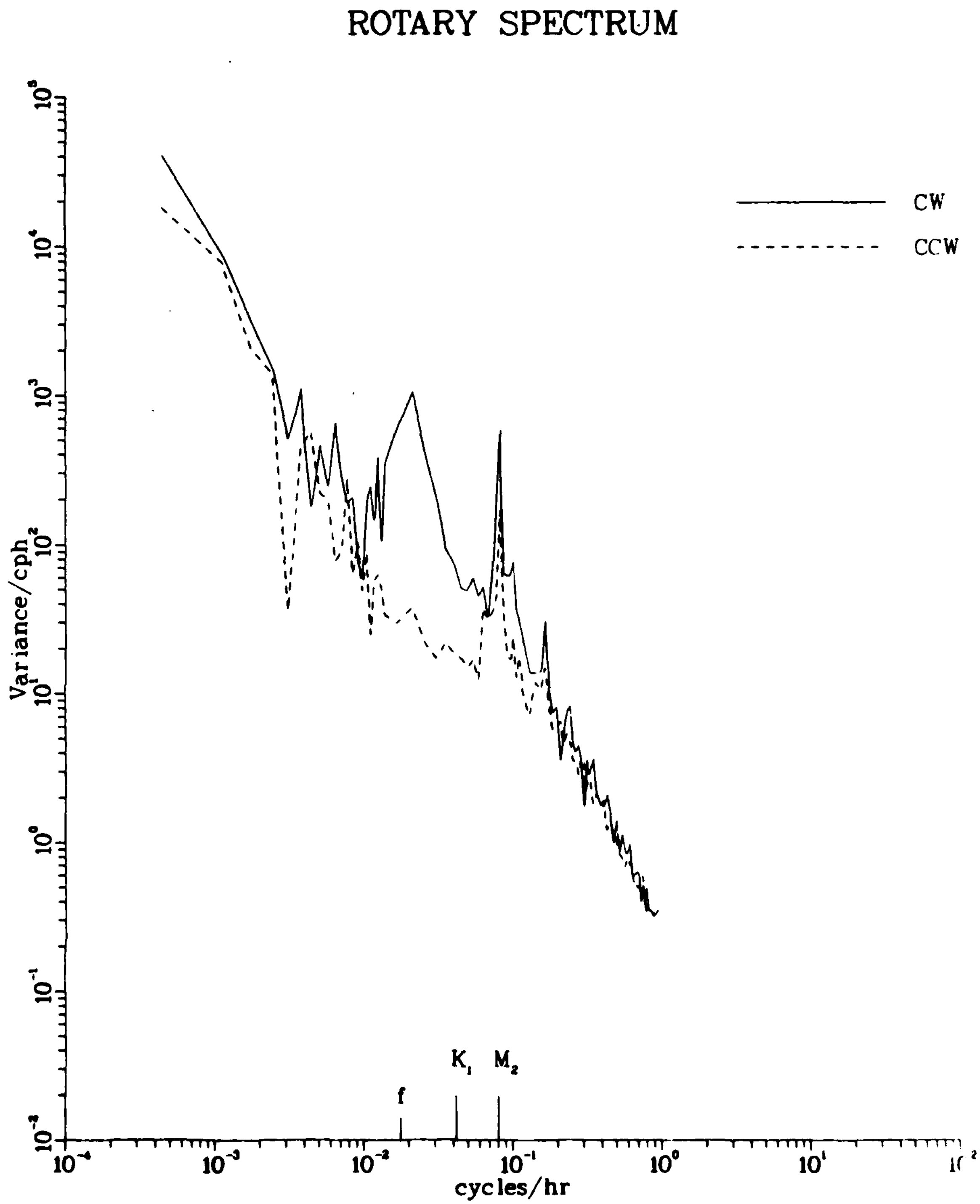
Array . D
Depth : 750
Start 8 AUG 1978
End . 10 FEB 1979

Figure 99. Meter 407 north spectrum



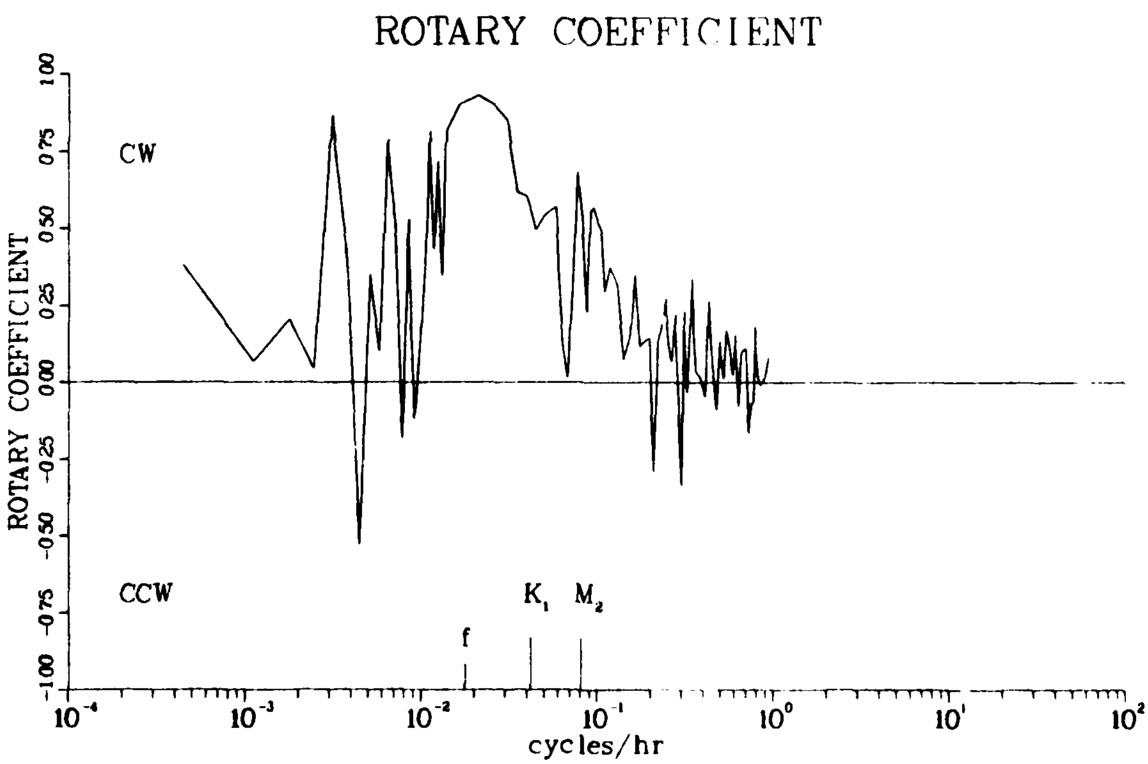
Variable	U	Variable	V
Depth	750	Depth	750
Meter	407	Meter	407
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

Figure 100. Meter 407 east-north coherence



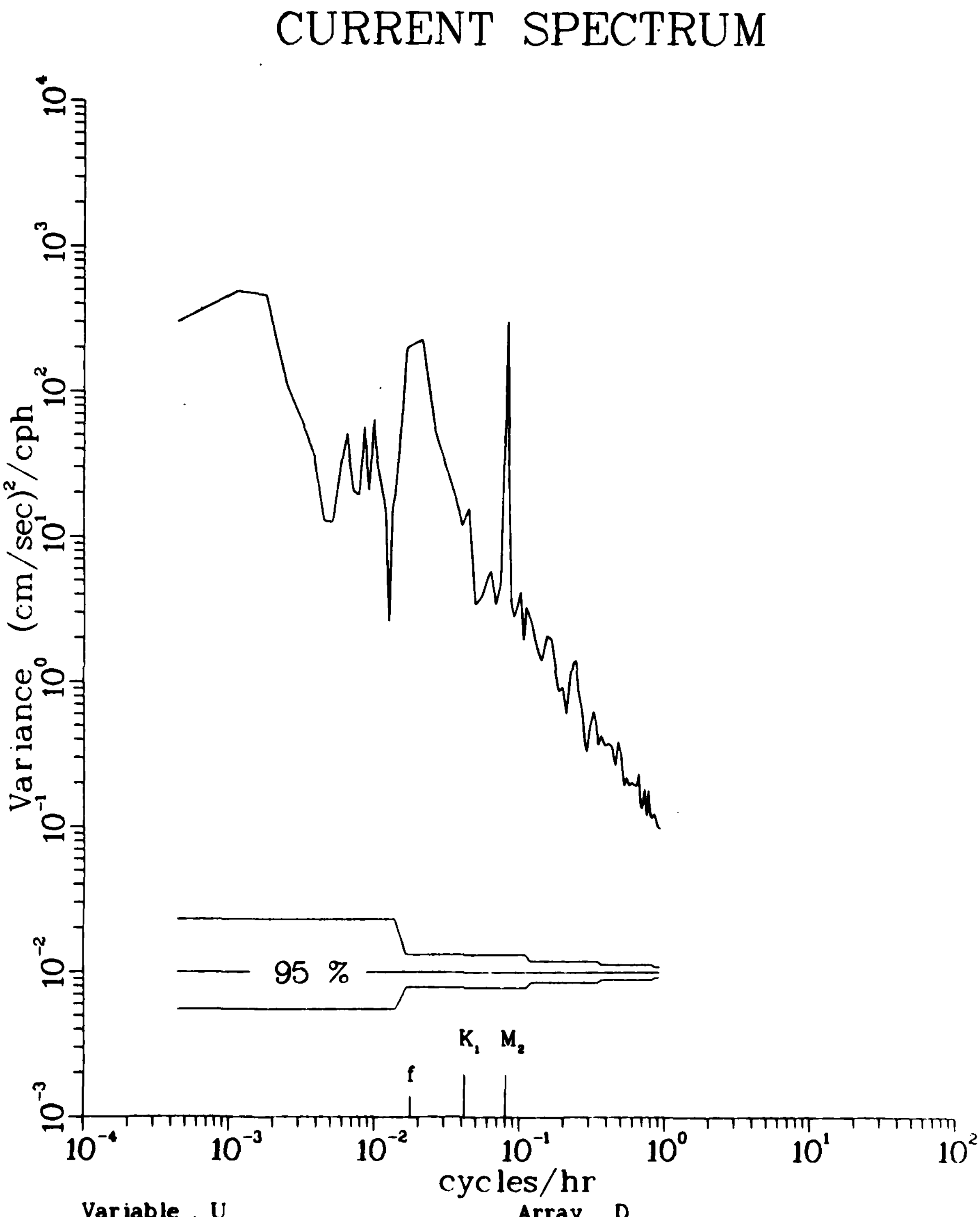
Variable	U	Variable	V
Depth	750	Depth	750
Meter	407	Meter	407
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

Figure 101. Meter 407 rotary spectrum



Variable	U	Variable	V
Depth	750	Depth	750
Meter	407	Meter	407
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

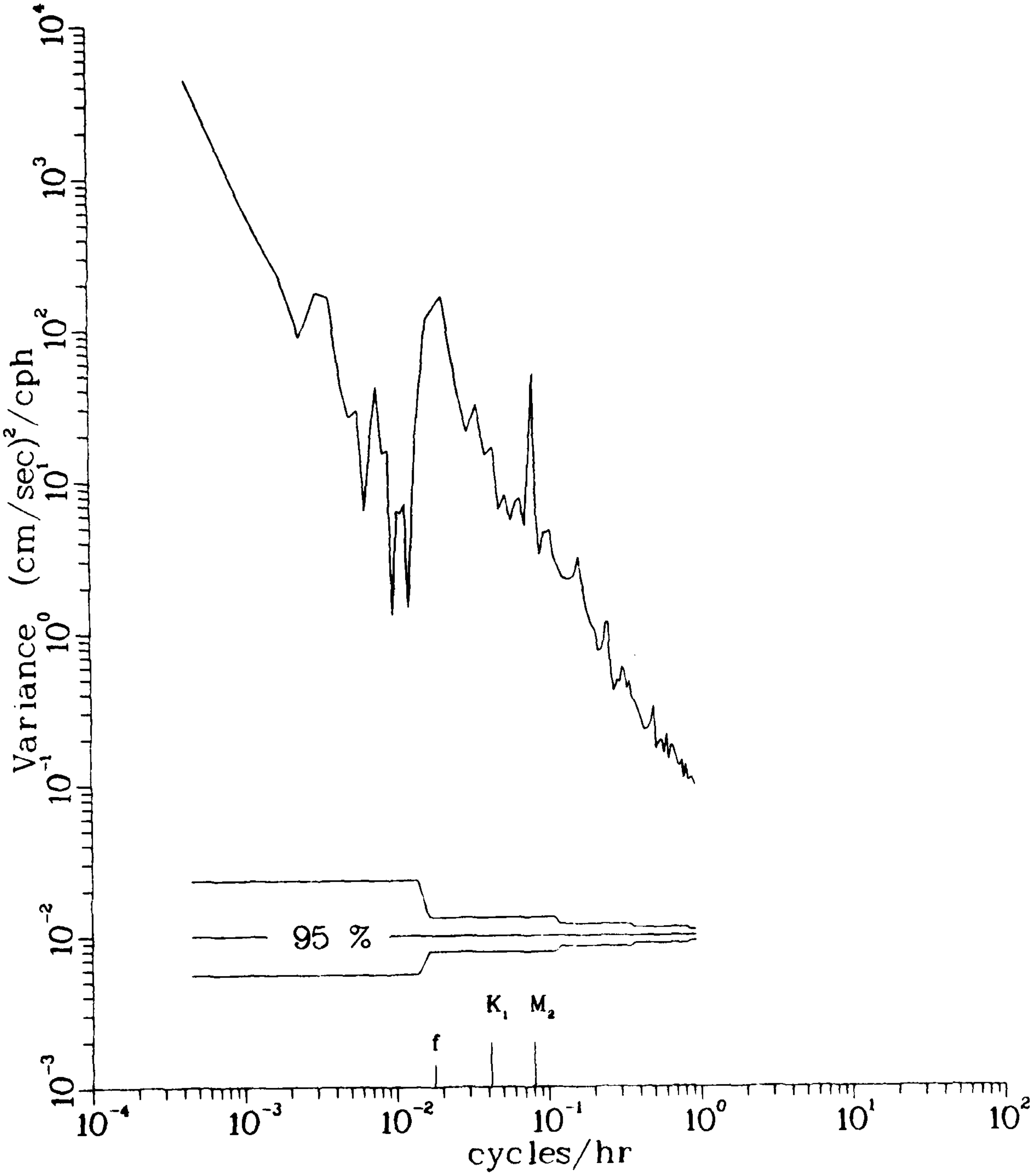
Figure 102. Meter 407 rotary coefficient



Variable	U	Array	D
File	VACMF	Depth	1500
Meter	414	Start	8 AUG 1978
Lat.	12.33000	End	10 FEB 1979
Long.	63.03000		

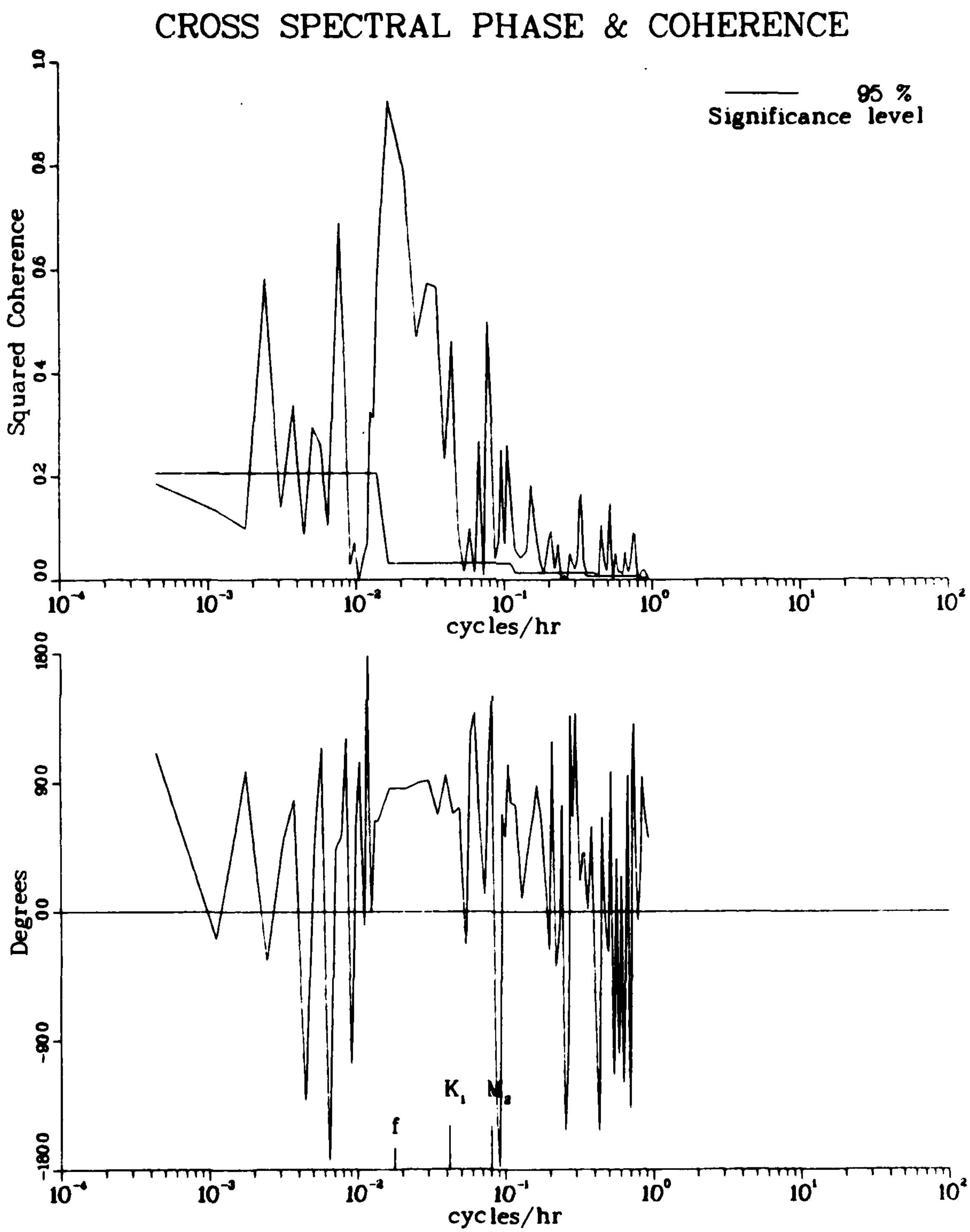
Figure 103. Meter 414 east spectrum

CURRENT SPECTRUM



Variable	V	Array	D
File	VACMF	Depth	1500
Meter	414	Start	8 AUG 1978
Lat	12.33000	End	10 FEB 1979
Long	63.03000		

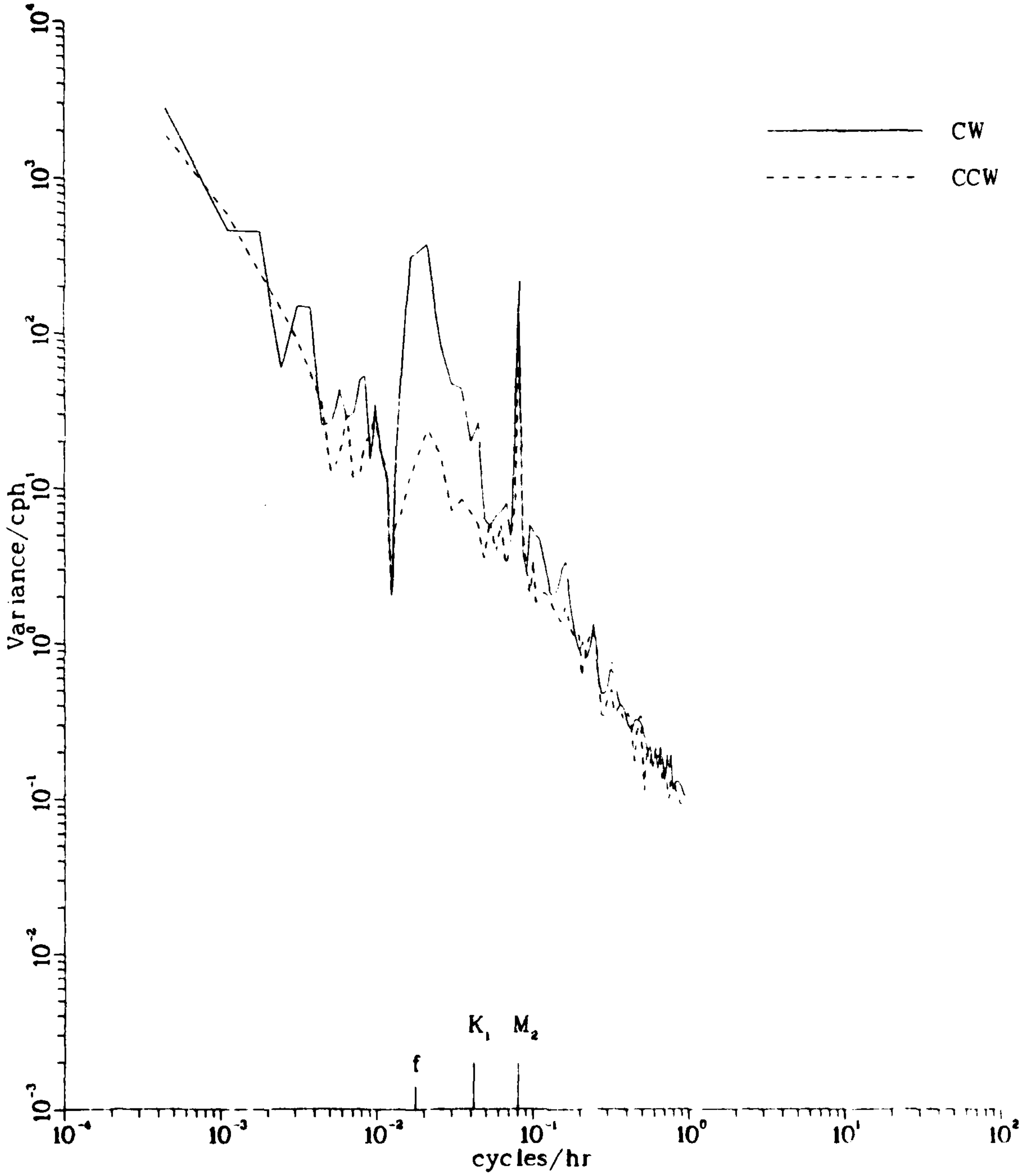
Figure 104. Meter 414 north spectrum



Variable	U	Variable	V
Depth :	1500	Depth	1500
Meter :	414	Meter	414
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

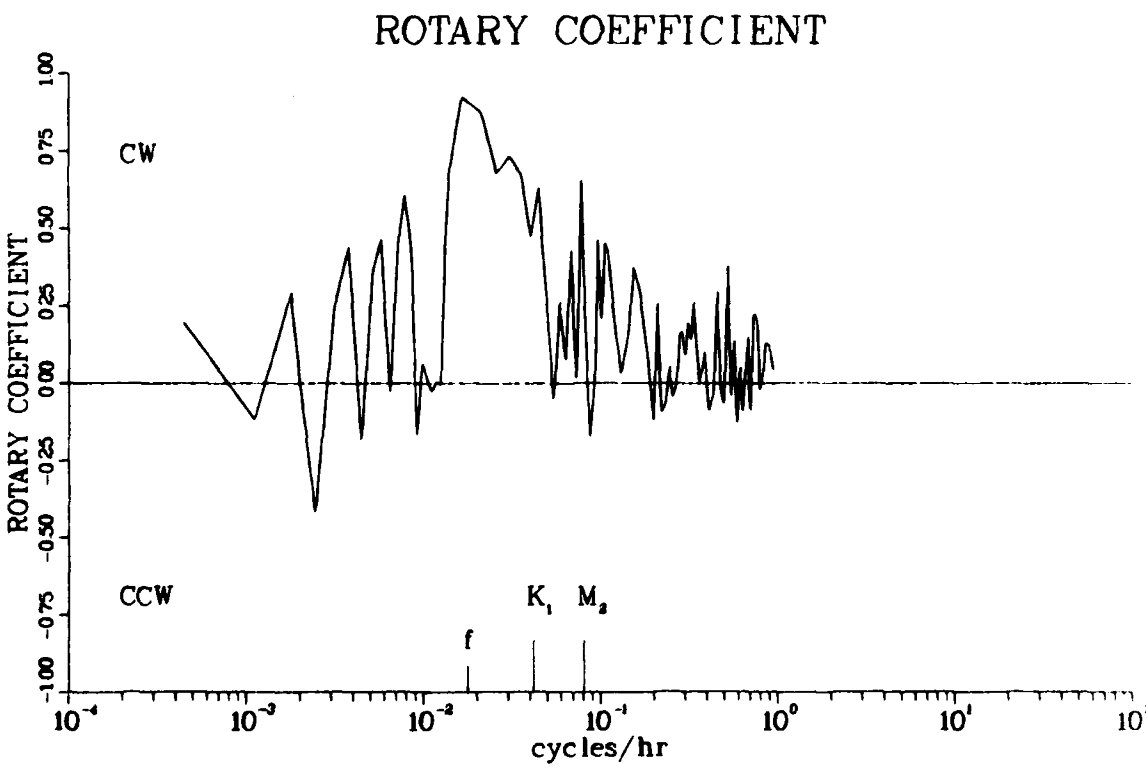
Figure 105. Meter 414 east-north coherence

ROTARY SPECTRUM



Variable	U	Variable	V
Depth	1500	Depth	1500
Meter	414	Meter	414
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

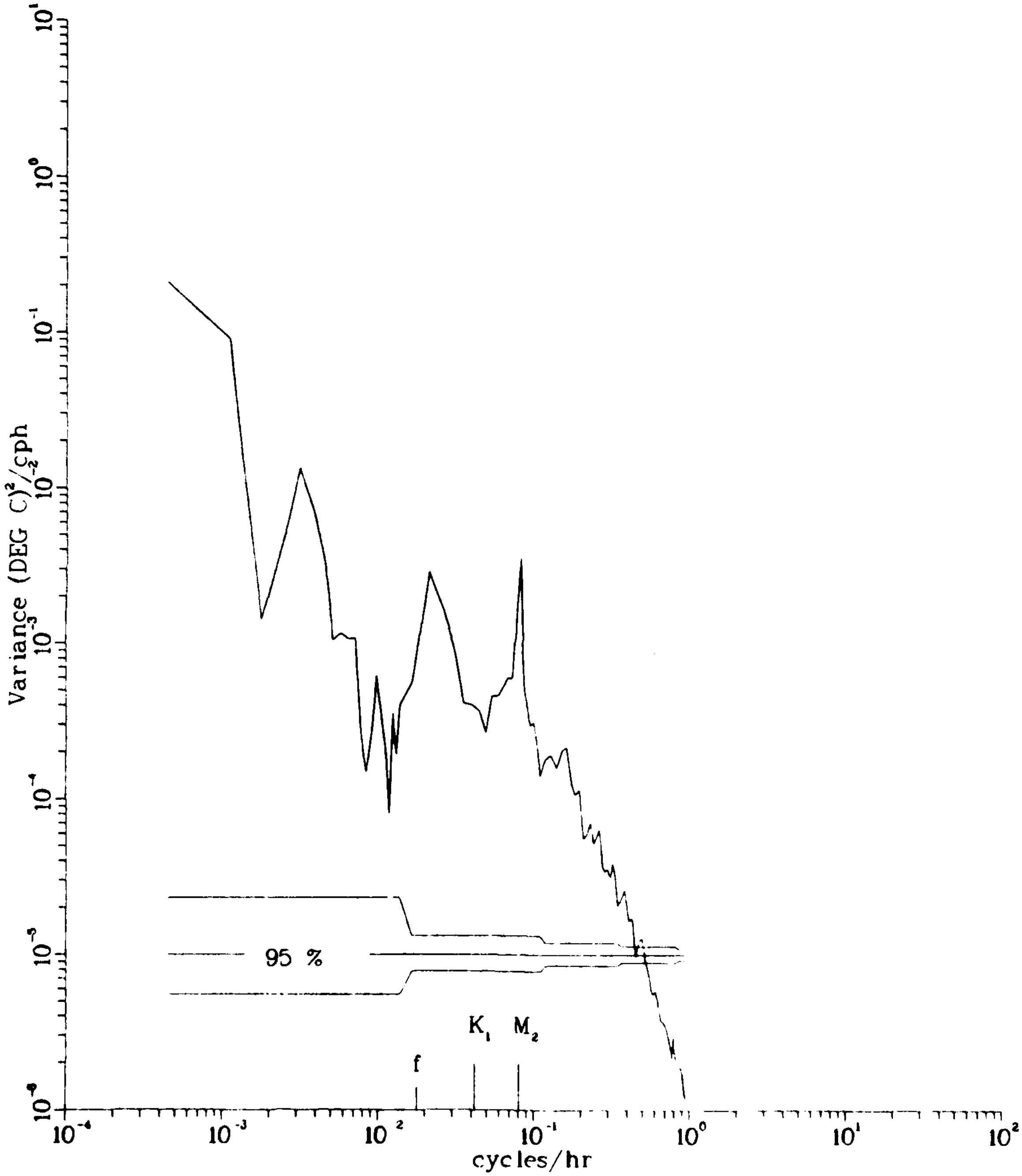
Figure 106. Meter 414 rotary spectrum



Variable : U		Variable . V	
Depth .	1500	Depth .	1500
Meter	414	Meter	414
Lat.	12.33000	Lat	12.33000
Long.	63.03000	Long.	63.03000

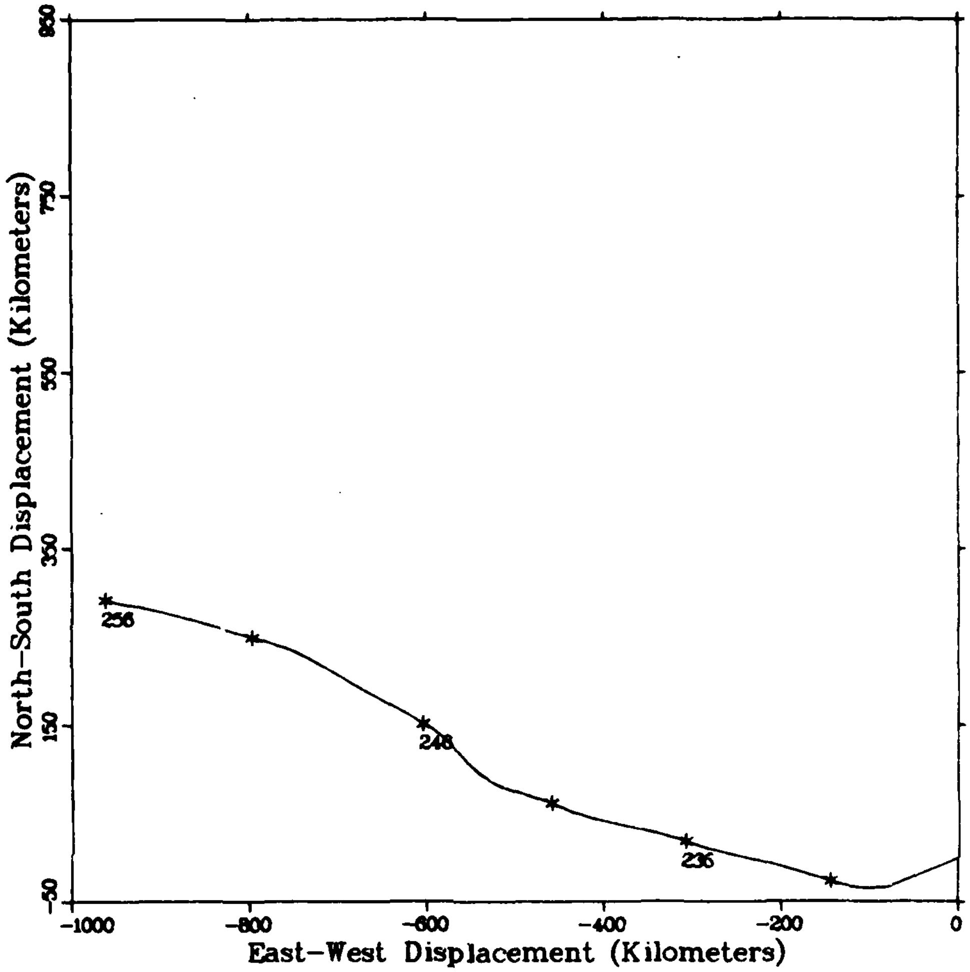
Figure 107. Meter 414 rotary coefficient

TEMPERATURE SPECTRUM



Variable	T	Array	D
File	VACMF	Depth	1500
Meter	414	Start	8 AUG 1978
Lat	12.33000	End	10 FEB 1979
Long	63.03000		

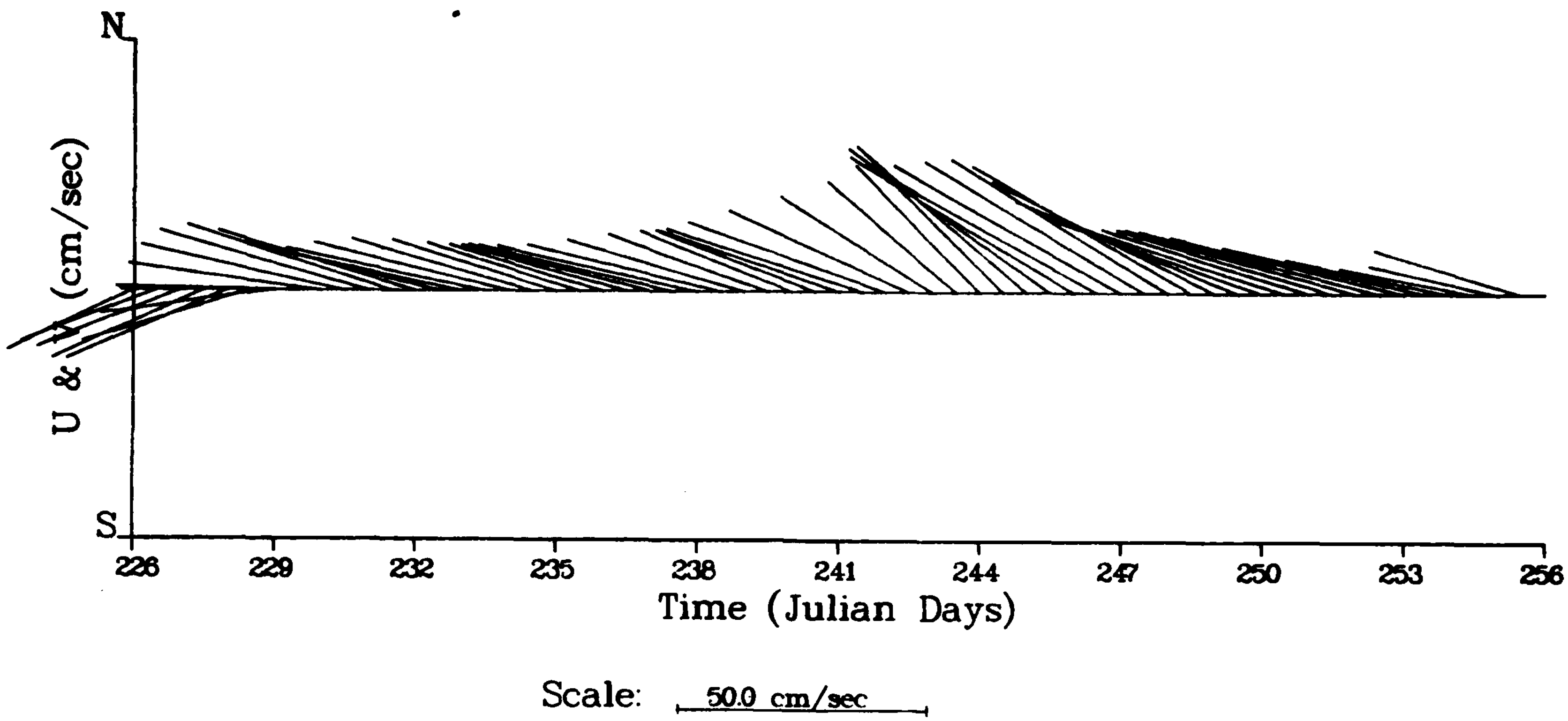
Figure 108. Meter 414 temperature spectrum



* Every 120 Hours Starting At 0000 Julian Day 226

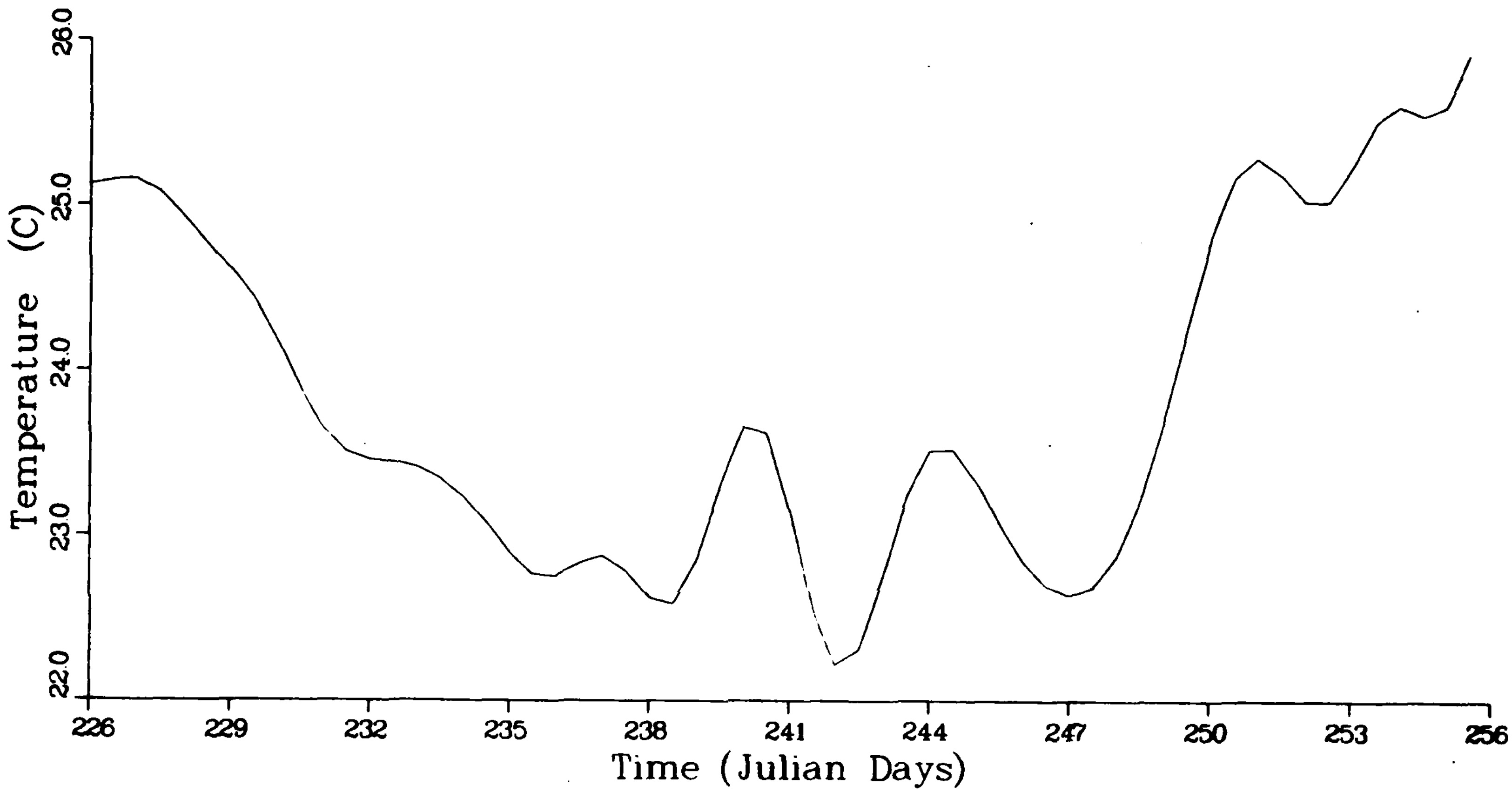
File :	VACMF	Array :	A
Meter :	406	Depth :	193
Latitude :	14.17300	Start :	14 AUG 1978
Longitude :	62.54450	End :	13 SEP 1978

Figure 109. Meter 406 progressive vector diagram



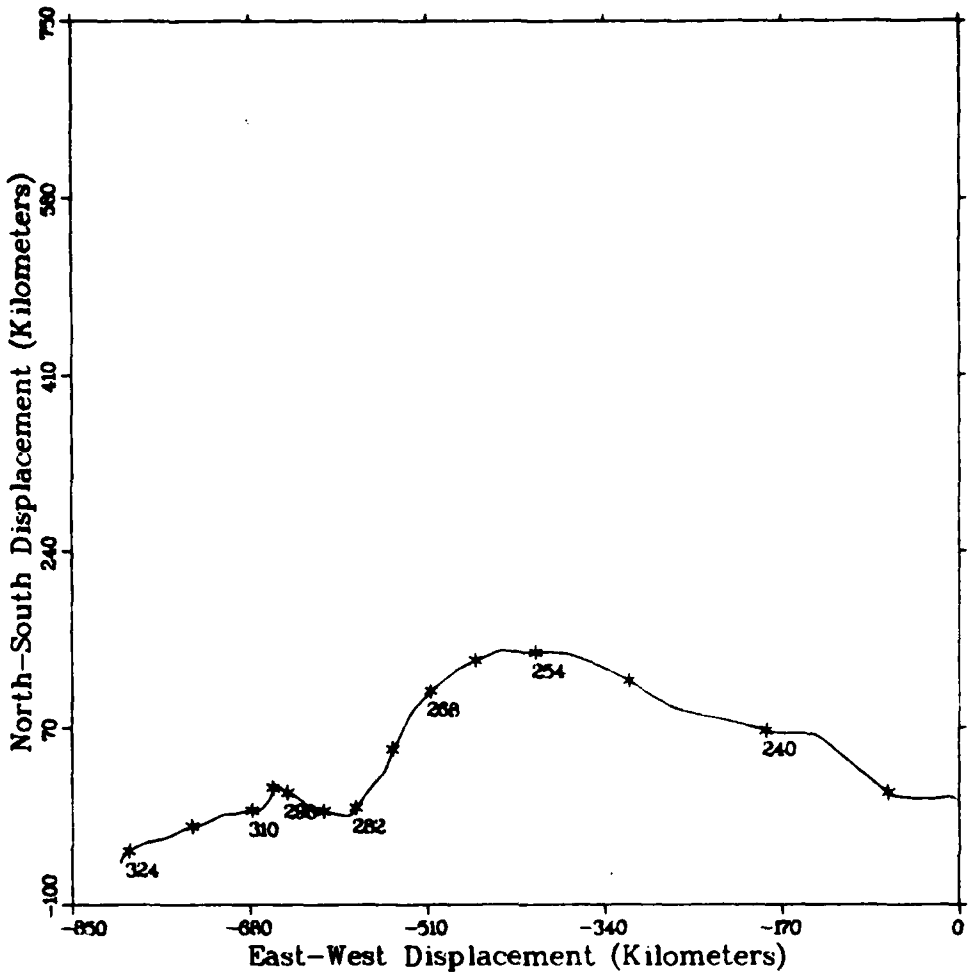
File :	VACMF	Array :	A
Meter :	406	Depth :	193
Latitude :	14.17300	Start :	14 AUG 1978
Longitude :	62.54450	End :	13 SEP 1978
Time Interval:	12.0000 Hours		

Figure 110. Meter 406 current vector diagram



File	VACMF	Array	A
Meter	406	Depth	193
Latitude	14.17300	Start	14 AUG 1978
Longitude	62.54450	End	13 SEP 1978

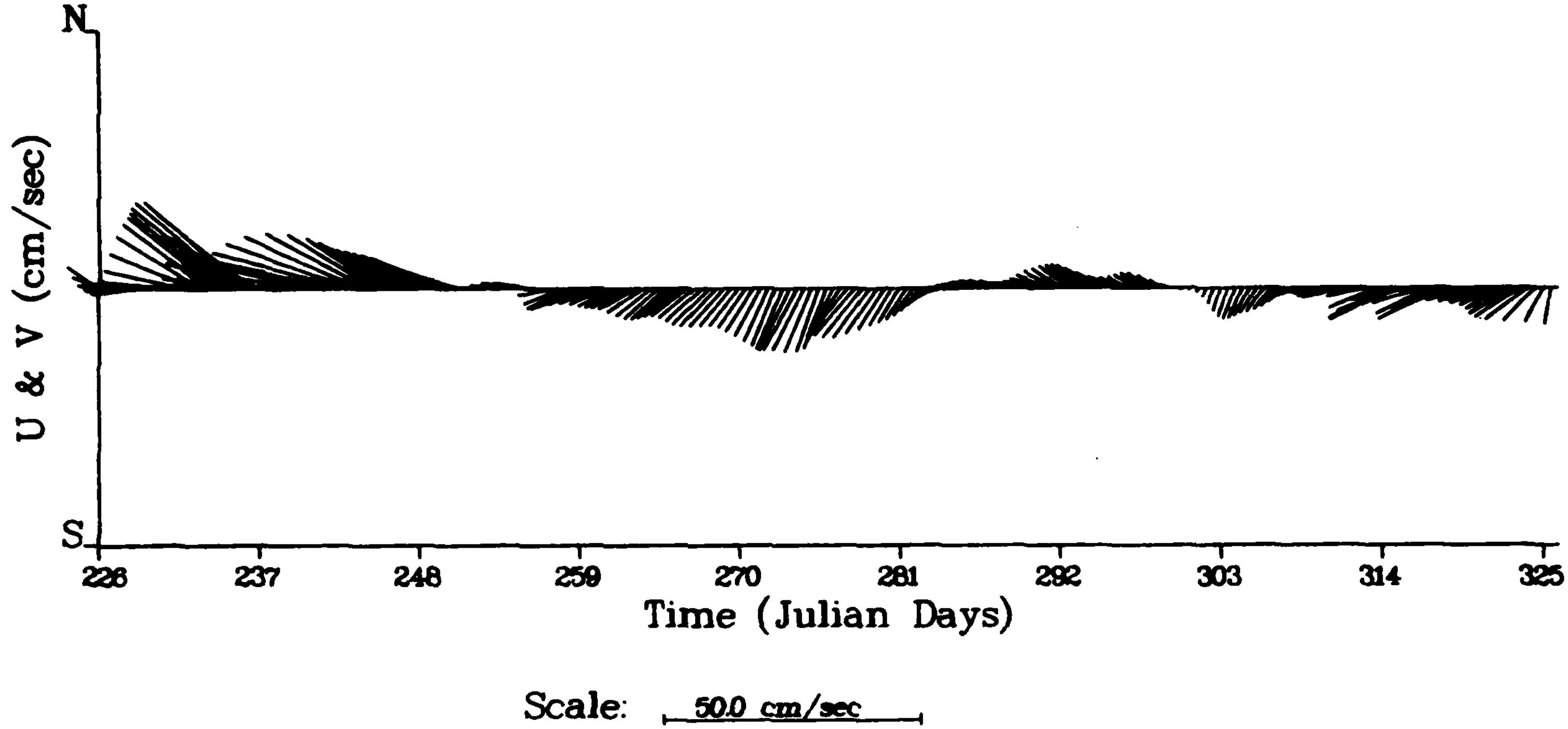
Figure 111. Meter 406 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 226

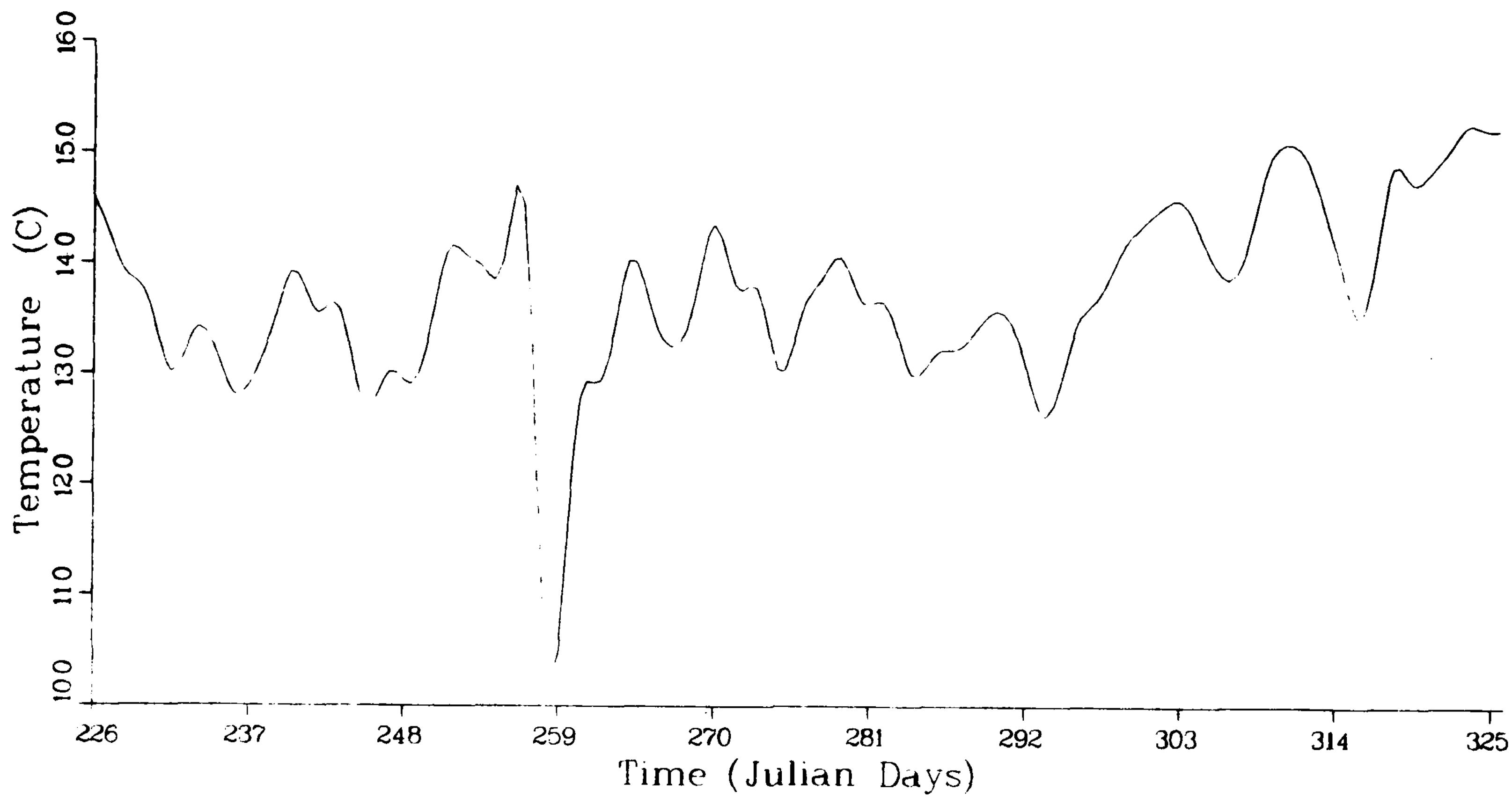
File :	VACMF	Array :	A
Meter :	416	Depth :	393
Latitude :	14.17300	Start :	14 AUG 1978
Longitude :	62.54450	End :	22 NOV 1978

Figure 112. Meter 416 progressive vector diagram



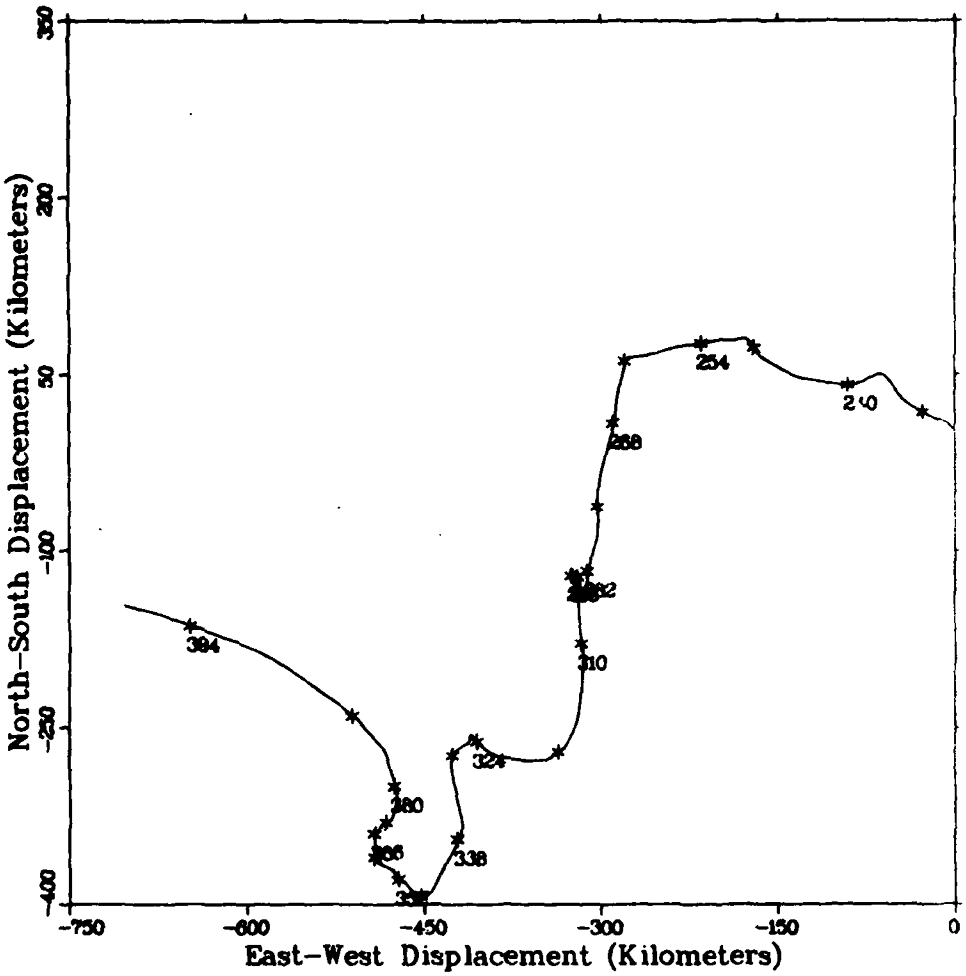
File :	VACMF	Array :	A
Meter :	416	Depth :	393
Latitude :	14.17300	Start :	14 AUG 1978
Longitude :	62.54450	End :	22 NOV 1978
Time Interval:	12.0000 Hours		

Figure 113. Meter 416 current vector diagram



File	VACMF	Array	A
Meter	416	Depth	393
Latitude	14.17300	Start	14 AUG 1978
Longitude	62.54450	End	22 NOV 1978

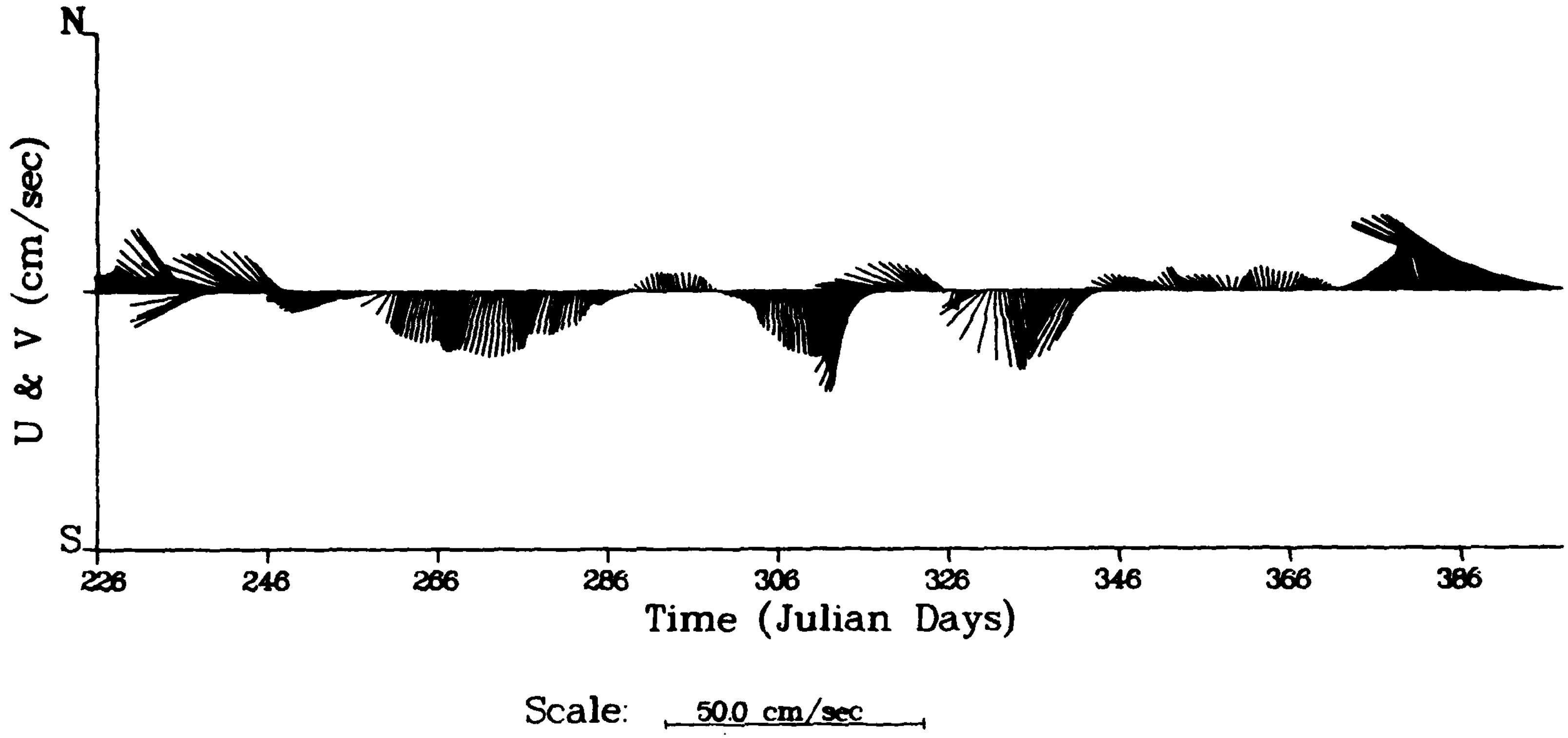
Figure 114. Meter 416 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day

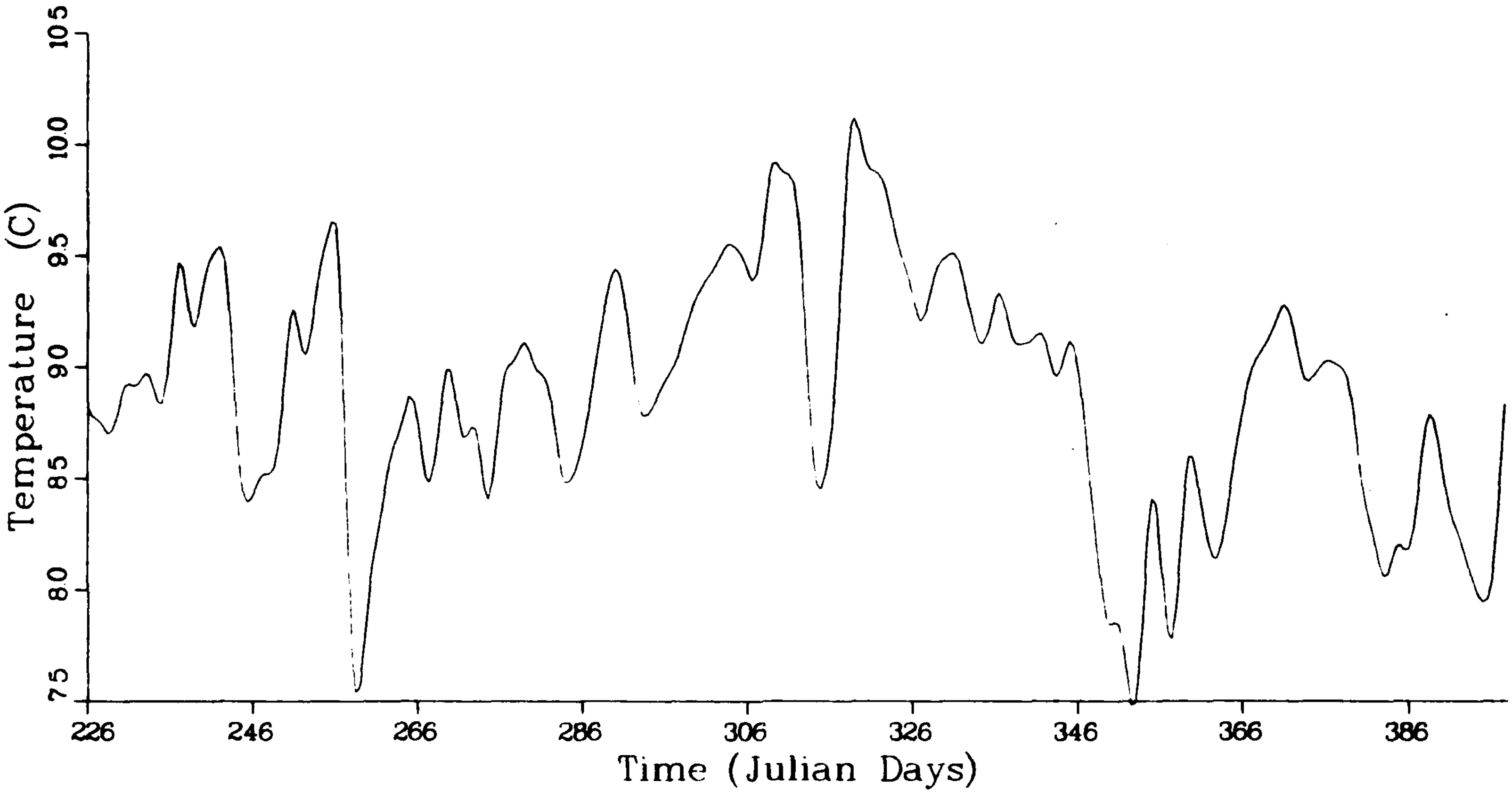
File :	VACMF	Array .	A
Meter :	412	Depth :	
Latitude :	14.17300	Start :	14 AUG
Longitude :	62.54450	End :	02 FEB

Figure 115. Meter 412 progressive vector diagram



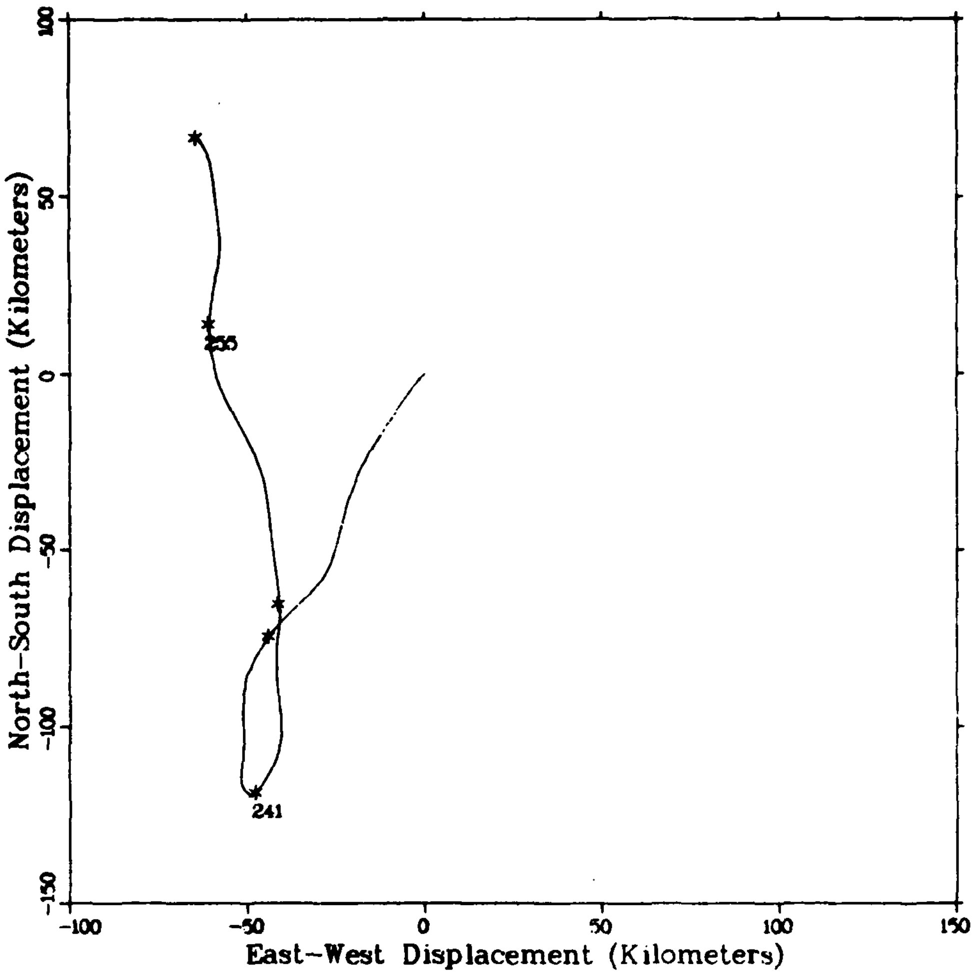
File :	VACMF	Array .	A
Meter :	412	Depth :	793
Latitude :	14.17300	Start :	14 AUG 1978
Longitude :	62.54450	End :	02 FEB 1979
Time Interval:	12.0000 Hours		

Figure 116. Meter 412 current vector diagram



File	VACMF	Array	A
Meter	412	Depth	793
Latitude	14.17300	Start	14 AUG 1978
Longitude	62.54450	End	02 FEB 1979

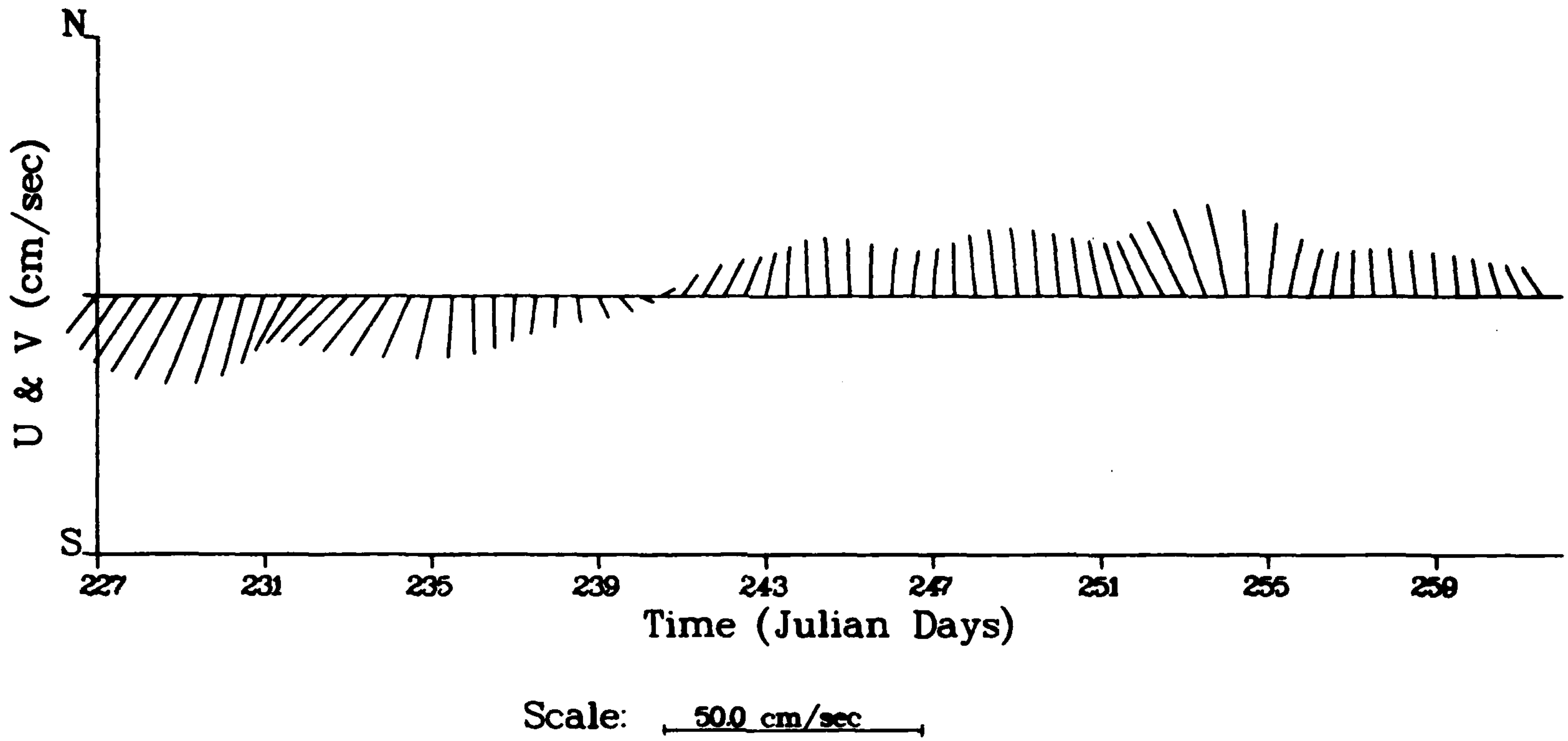
Figure 117. Meter 412 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 227

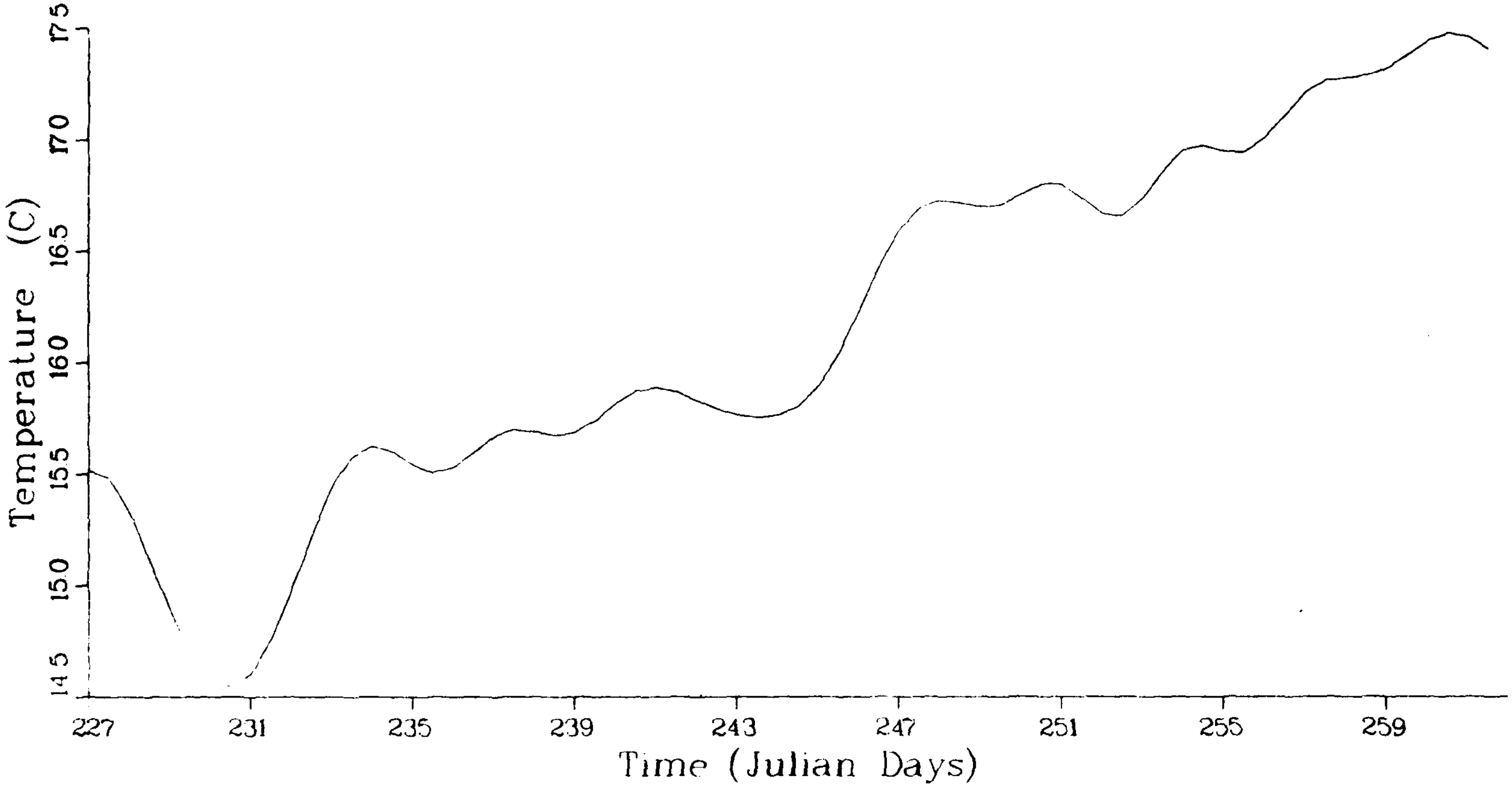
File :	VACMF	Array :	B
Meter :	219	Depth :	193
Latitude :	13.40500	Start :	15 AUG 1978
Longitude :	62.44900	End :	19 SEP 1978

Figure 118. Meter 219 progressive vector diagram



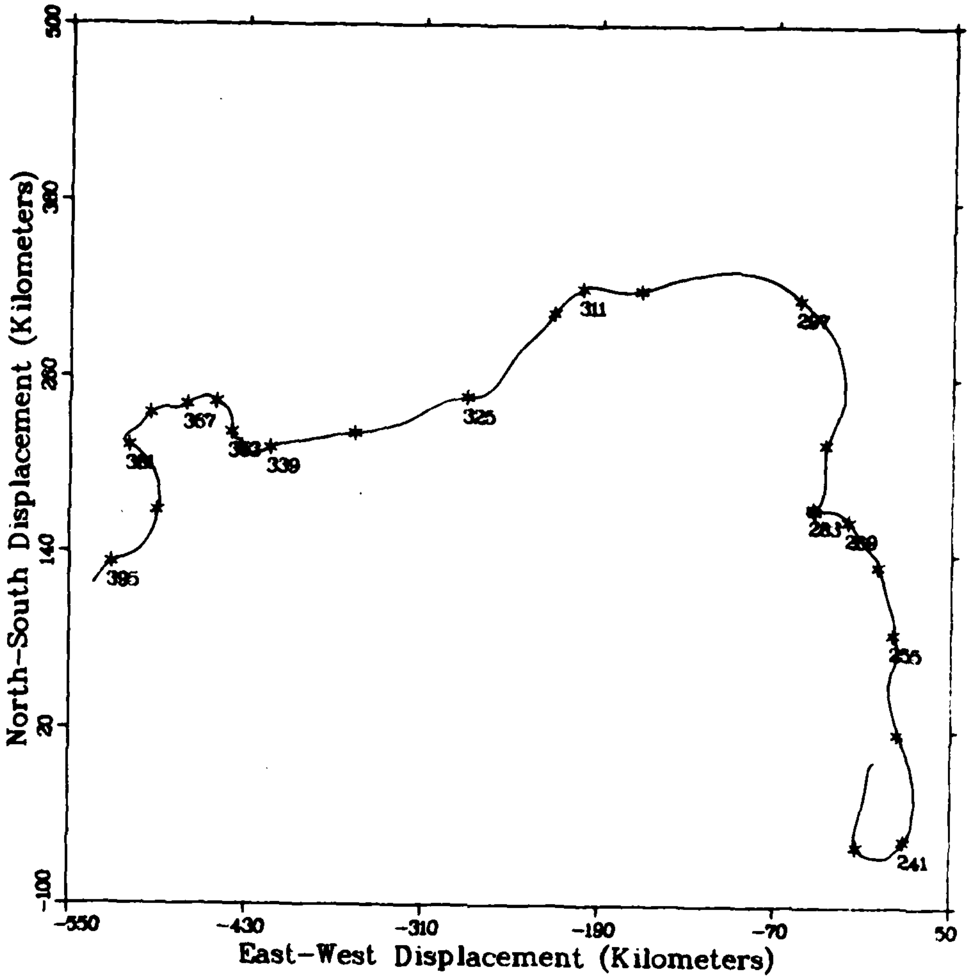
File :	VACMF	Array :	B
Meter :	219	Depth :	193
Latitude :	13.40500	Start :	15 AUG 1978
Longitude :	62.44900	End :	19 SEP 1978
Time Interval:	12.0000 Hours		

Figure 119. Meter 219 current vector diagram



File	VACMF	Array	B
Meter	219	Depth	193
Latitude	13.40500	Start	15 AUG 1978
Longitude	62.44900	End	19 SEP 1978

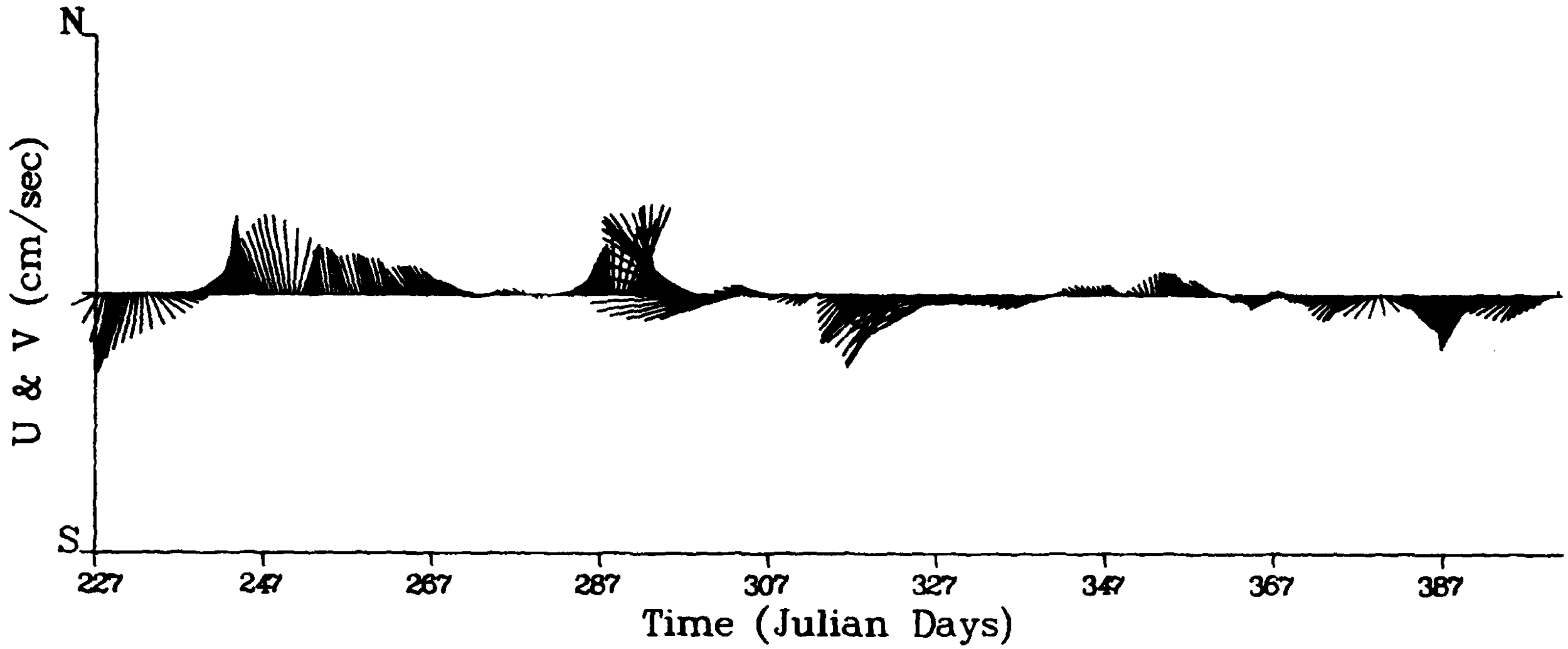
Figure 126. Meter 219 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 227

File :	VACMF	Array .	B
Meter :	298	Depth :	393
Latitude :	13.40500	Start :	15 AUG 1978
Longitude :	62.44900	End :	05 FEB 1979

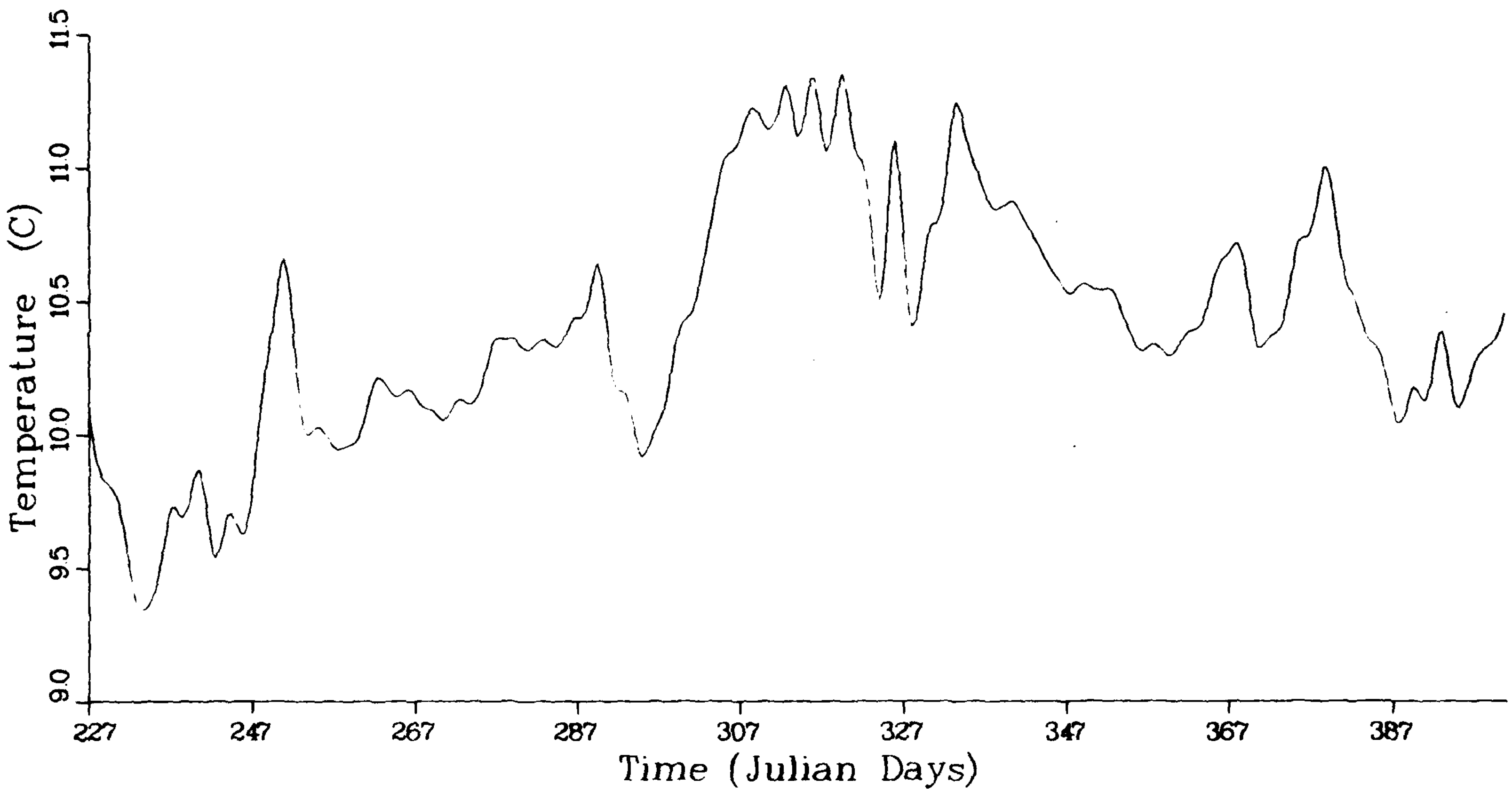
Figure 121. Meter 298 progressive vector diagram



Scale: 50.0 cm/sec

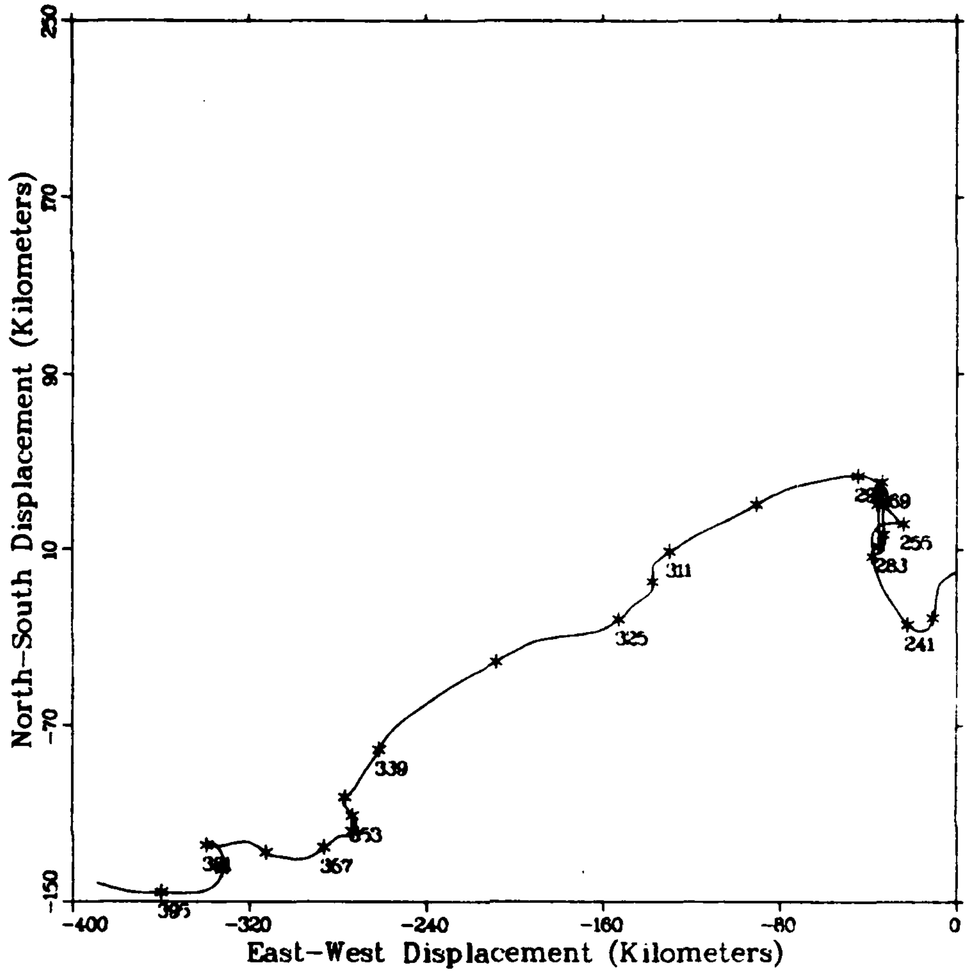
File :	VACMF	Array :	B
Meter :	298	Depth :	393
Latitude :	13.40500	Start :	15 AUG 1978
Longitude :	62.44900	End :	05 FEB 1979
Time Interval:	12.0000 Hours		

Figure 122. Meter 298 current vector diagram



File	VACMF	Array	B
Meter	298	Depth	393
Latitude	13.40500	Start	15 AUG 1978
Longitude	62.44900	End	05 FEB 1979

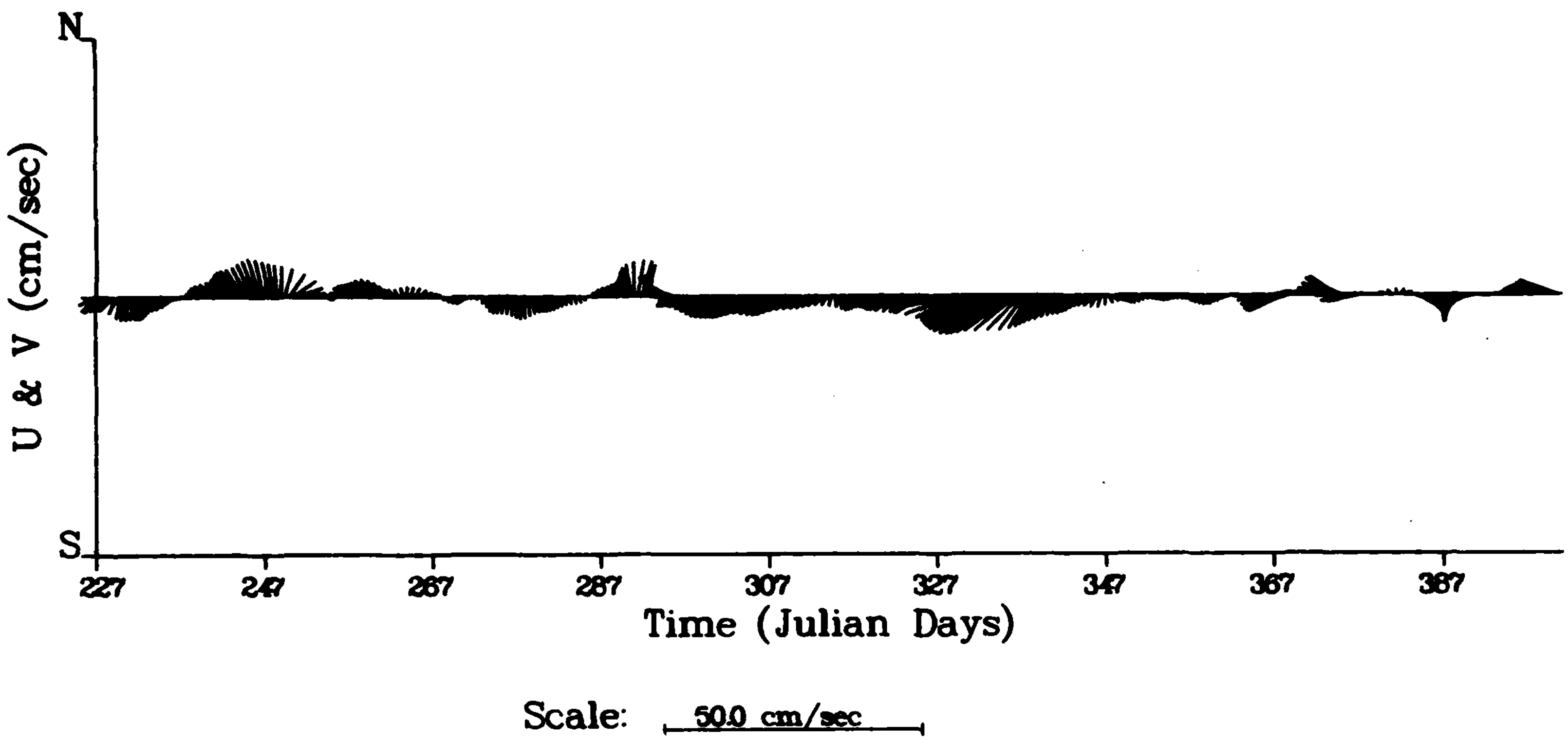
Figure [illegible] Meter 298 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 227

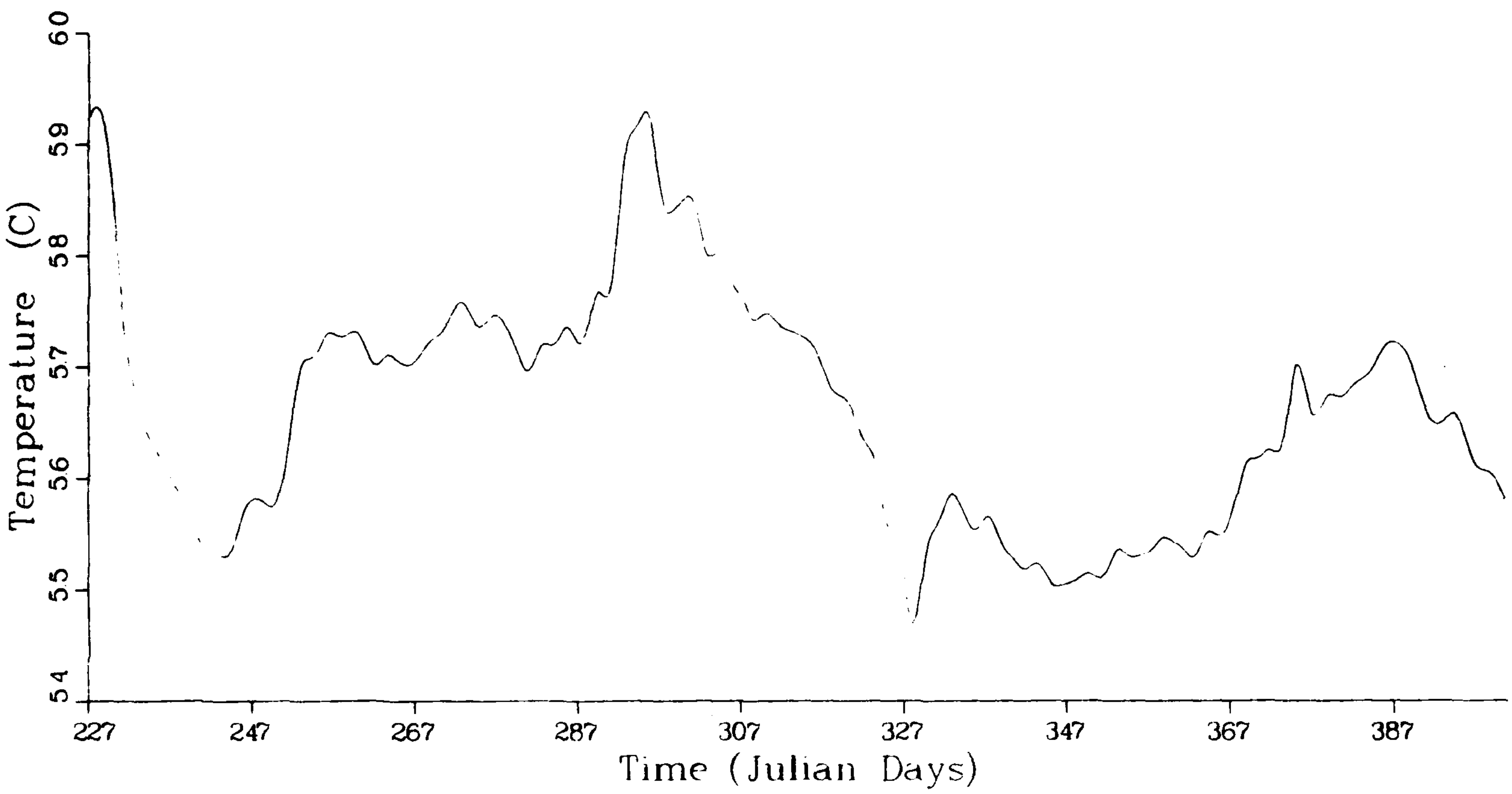
File :	VACMF	Array .	B
Meter :	417	Depth .	793
Latitude :	13 40500	Start .	15 AUG 1978
Longitude :	62.44900	End .	05 FEB 1979

Figure 124. Meter 417 progressive vector diagram



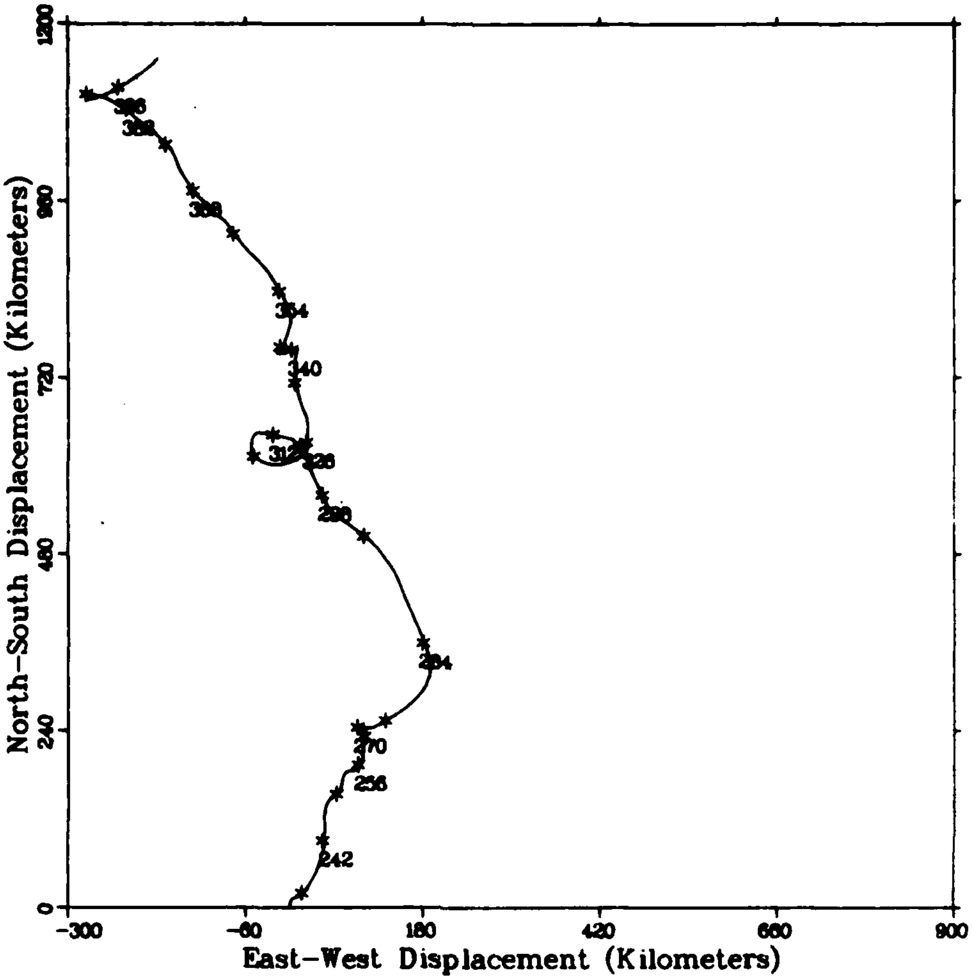
File :	VACMF	Array :	B
Meter :	417	Depth :	793
Latitude :	13.40500	Start :	15 AUG 1978
Longitude :	62.44900	End :	05 FEB 1979
Time Interval:	12.0000 Hours		

Figure 125. Meter 417 current vector diagram



File	VACMF	Array	B
Meter	417	Depth	793
Latitude	13.40500	Start	15 AUG 1978
Longitude	62.44900	End	05 FEB 1979

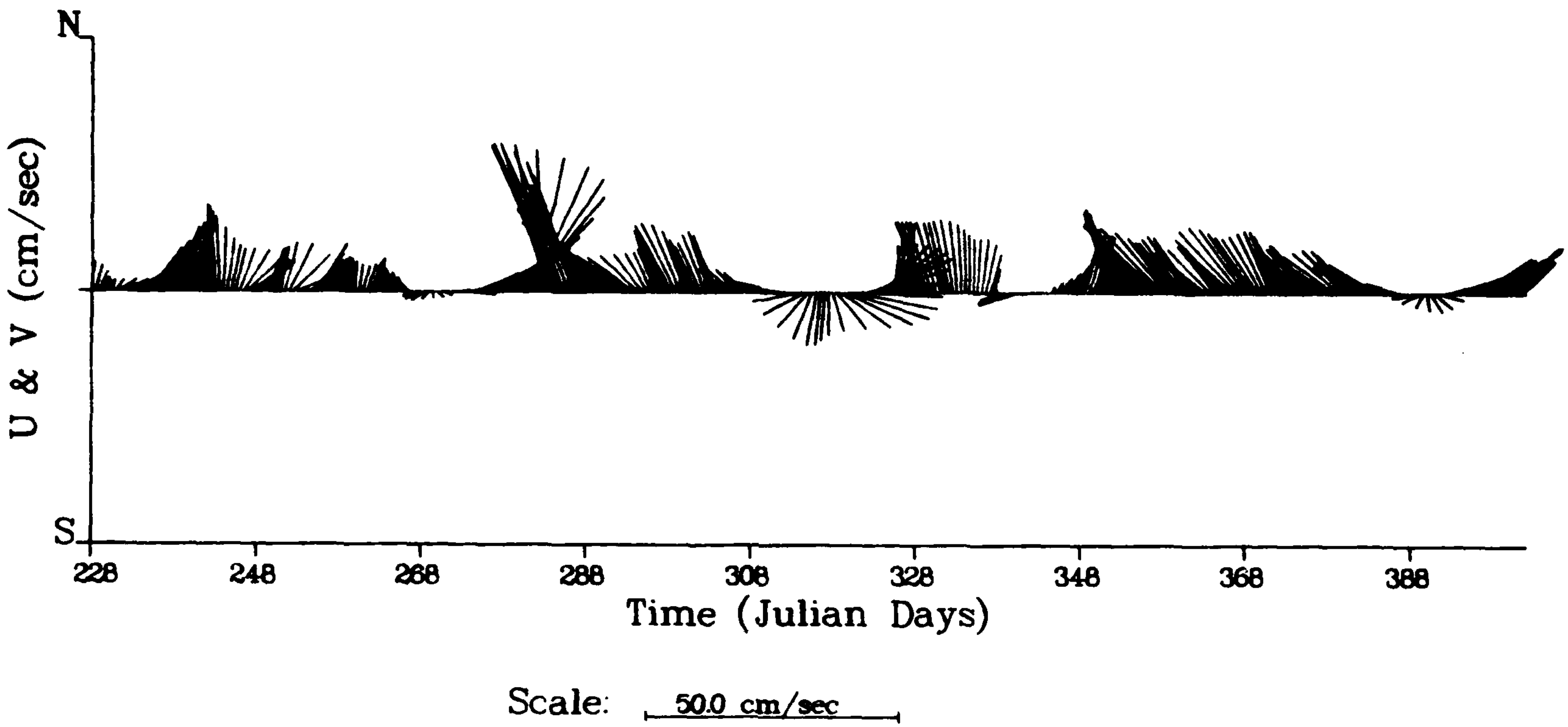
Figure 126. Meter 417 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 228

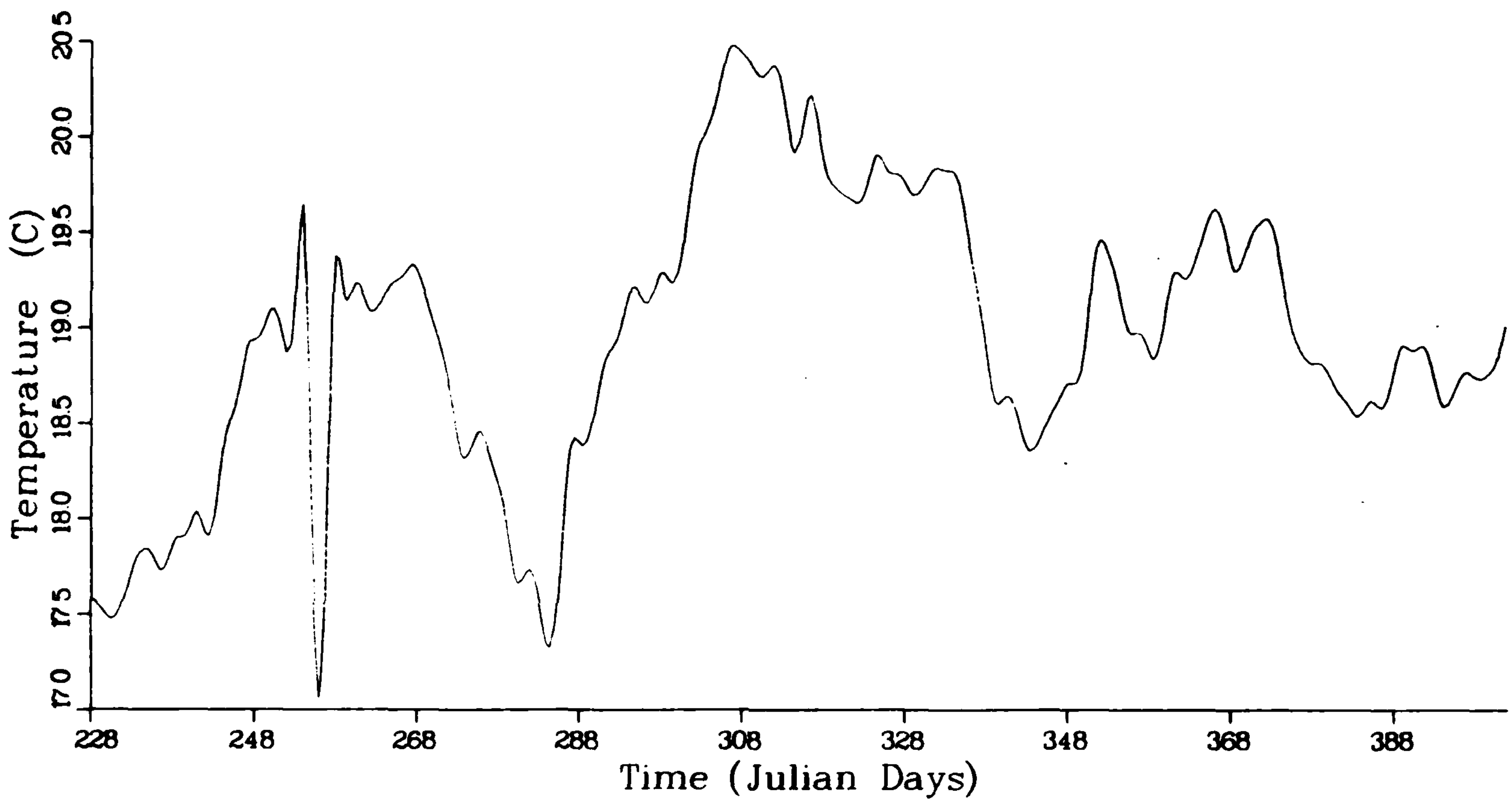
File :	VACMF	Array .	C
Meter :	300	Depth :	150
Latitude :	13.08230	Start :	16 AUG 1978
Longitude :	61.99000	End :	06 FEB 1979

Figure 127. Meter 300 progressive vector diagram



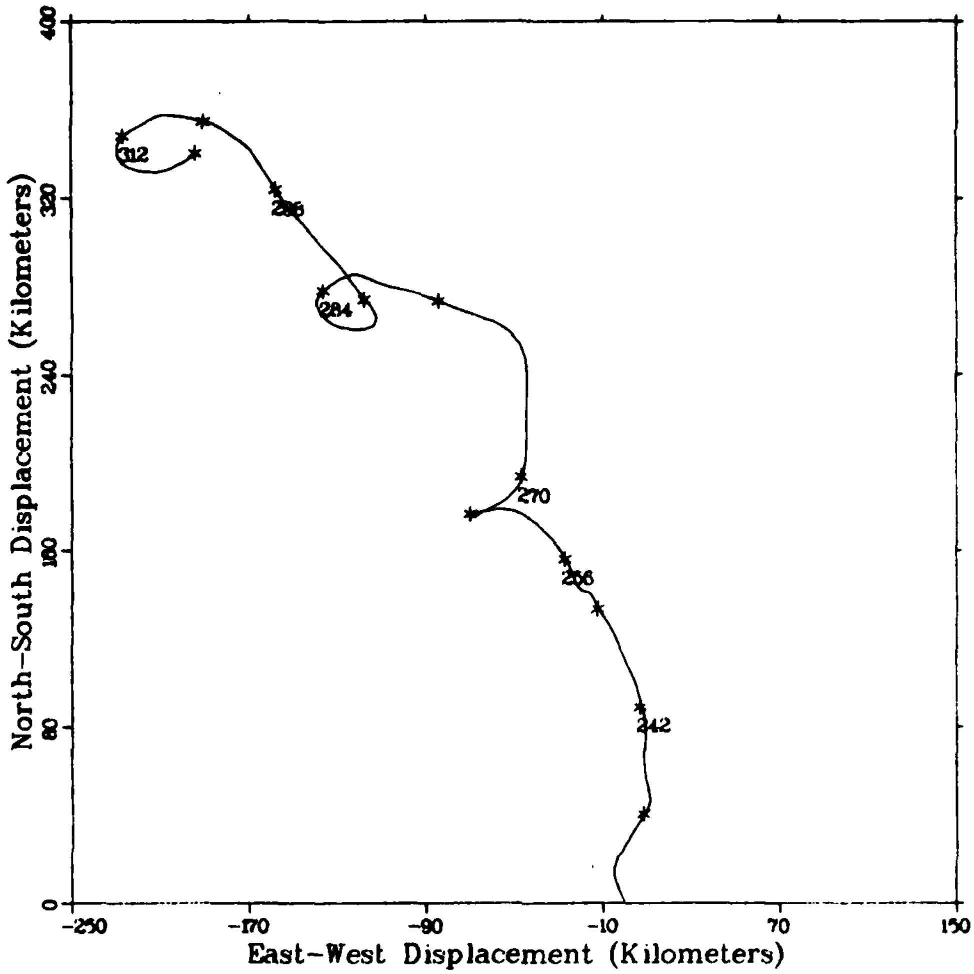
File :	VACMF	Array .	C
Meter :	300	Depth :	150
Latitude :	13.08230	Start :	16 AUG 1978
Longitude :	61.99000	End :	06 FEB 1979
Time Interval:	12.0000 Hours		

Figure 128. Meter 300 current vector diagram



File	VACMF	Array	C
Meter	300	Depth	150
Latitude	13.08230	Start	16 AUG 1978
Longitude	61.99000	End	06 FEB 1979

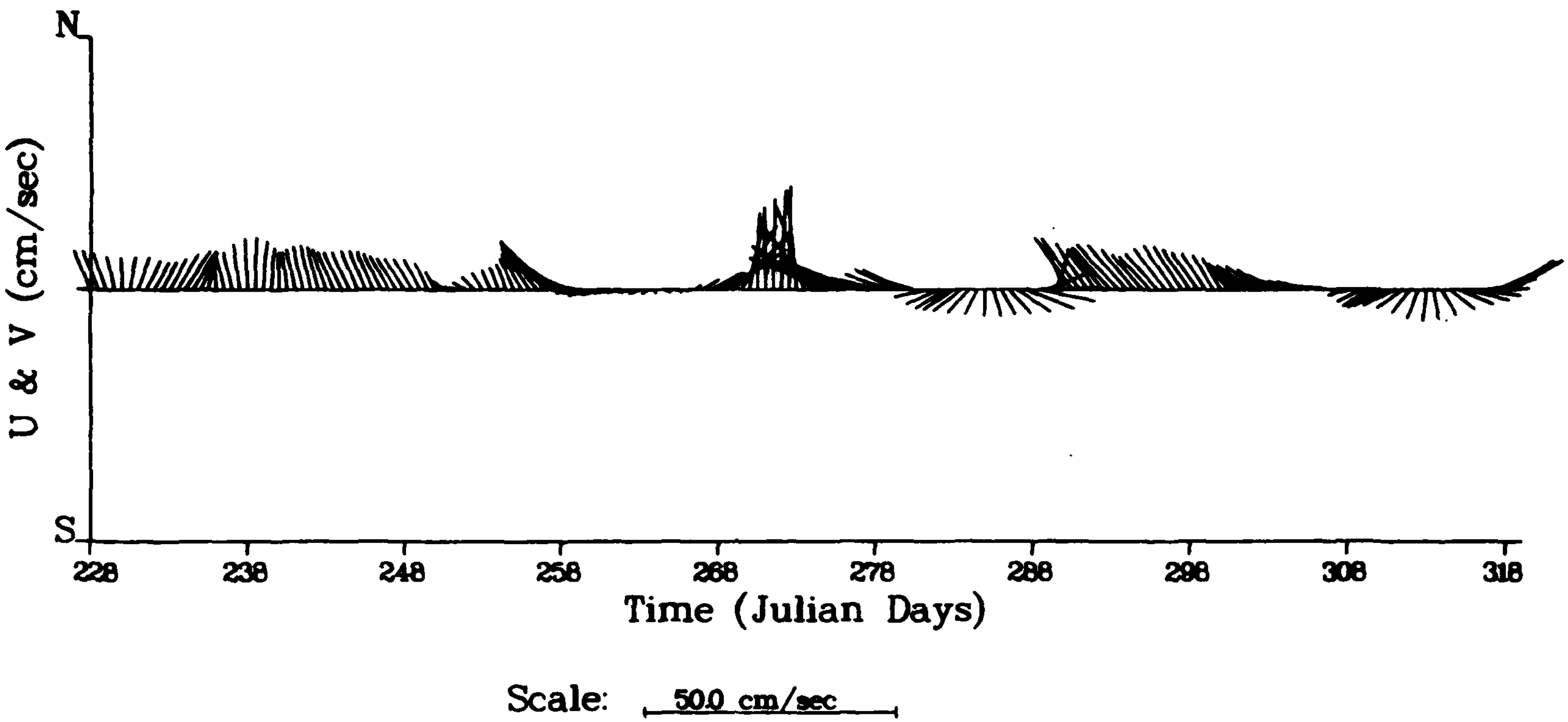
Figure 129. Meter 300 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 228

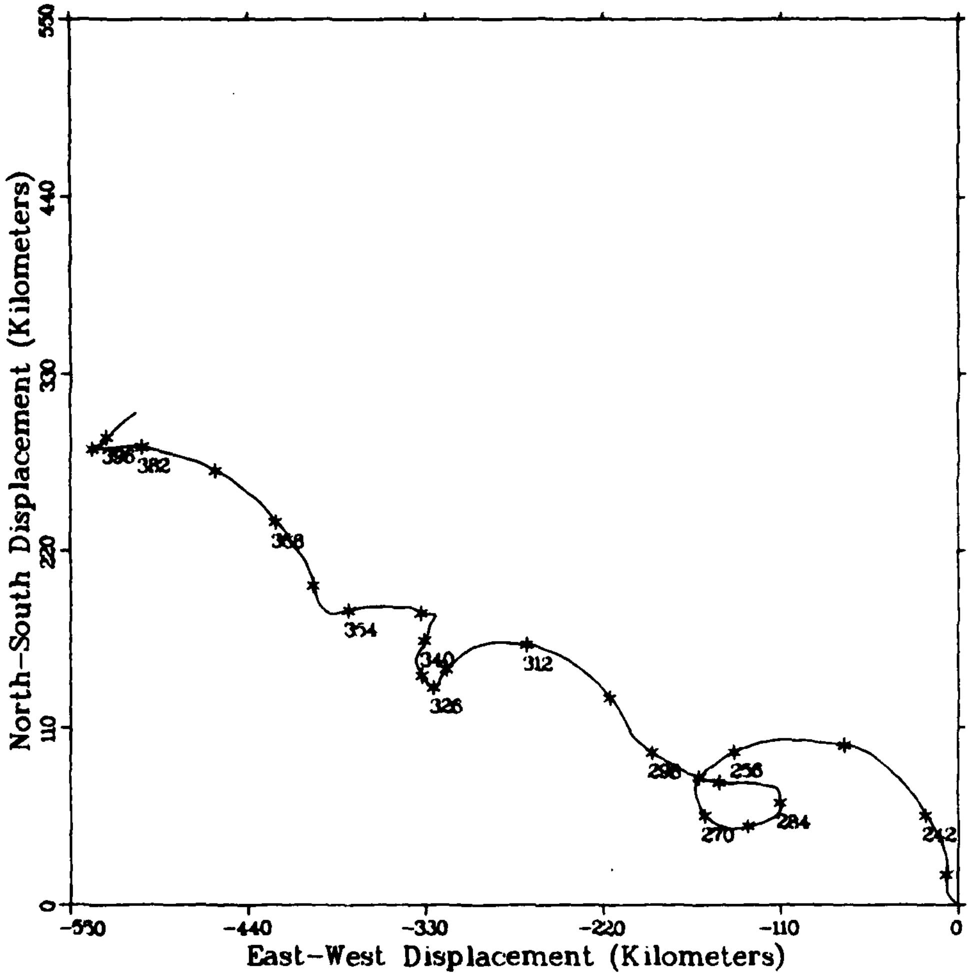
File .	VACMF	Array .	C
Meter :	296	Depth .	350
Latitude .	13.08230	Start :	16 AUG 1978
Longitude :	61.99000	End .	15 NOV 1978

Figure 130. Meter 296 progressive vector diagram



File :	VACMF	Array :	C
Meter :	296	Depth :	350
Latitude :	13.08230	Start :	16 AUG 1978
Longitude :	61.99000	End :	15 NOV 1978
Time Interval:	12.0000 Hours		

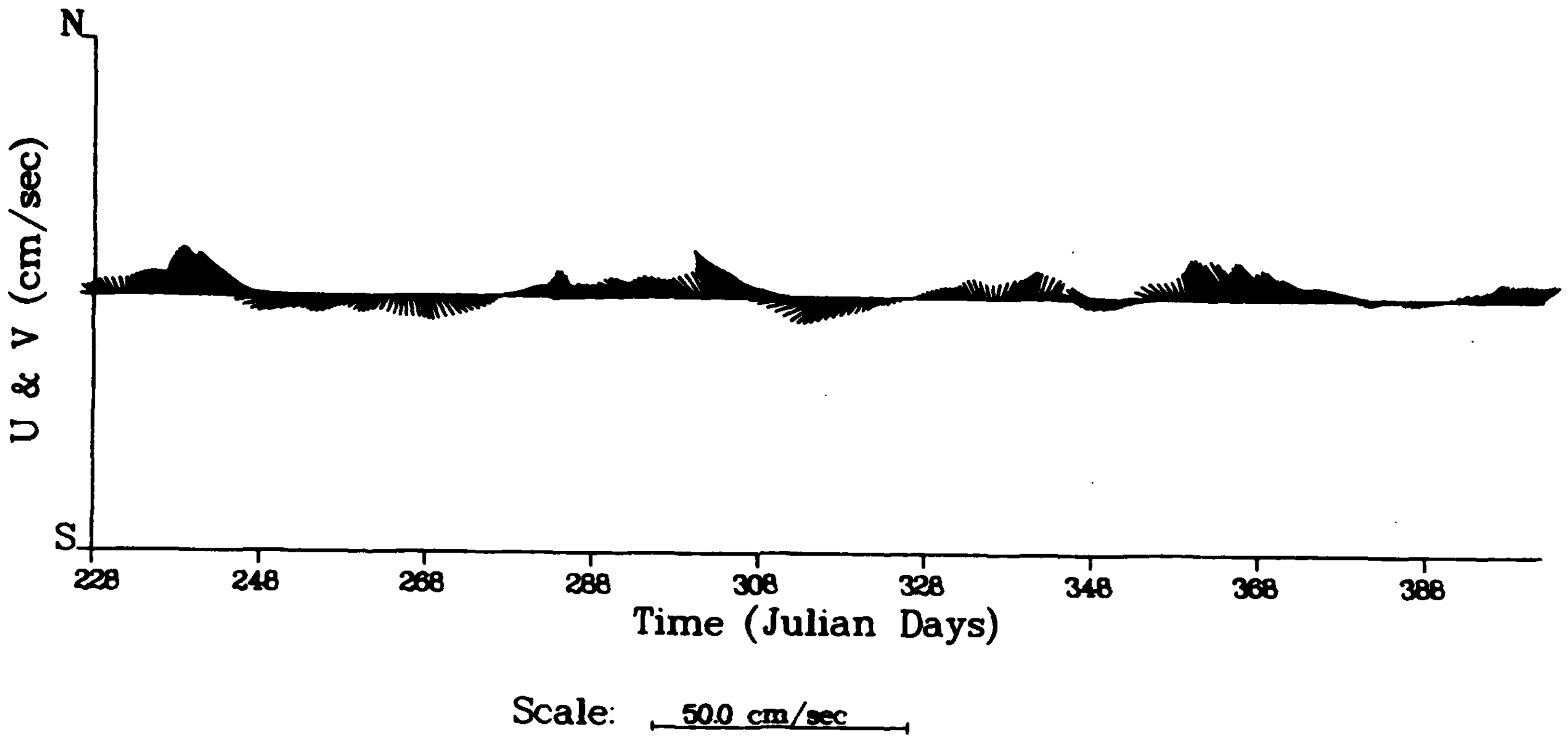
Figure 131. Meter 296 current vector diagram



* Every 168 Hours Starting At 0000 Julian Day 228

File :	VACMF	Array .	C
Meter .	410	Depth .	750
Latitude .	13.08230	Start .	16 AUG 1978
Longitude :	61.99000	End :	06 FEB 1979

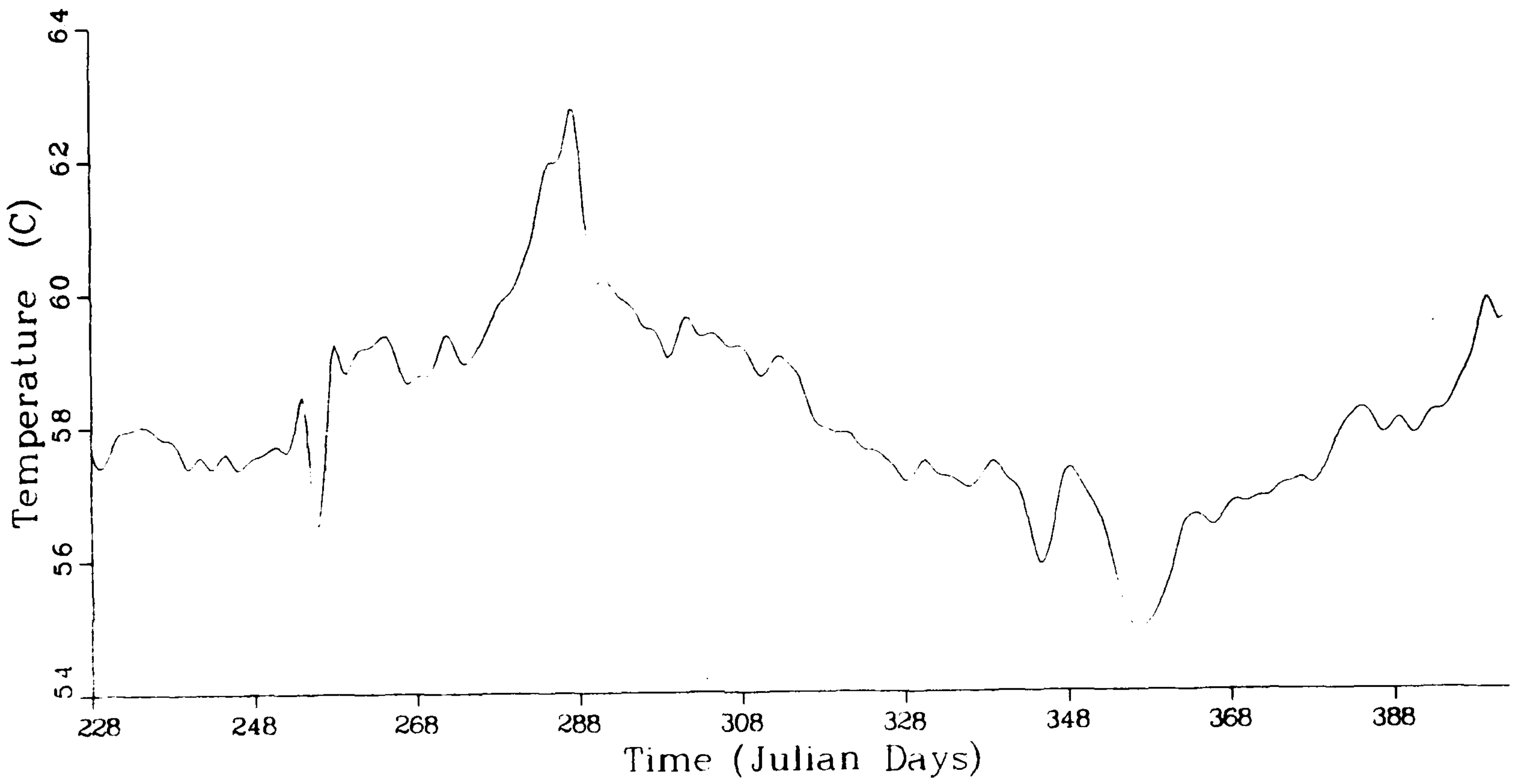
Figure 132. Meter 410 progressive vector diagram



File : VACMF
Meter : 410
Latitude : 13.08230
Longitude : 61.99000
Time Interval: 12.0000 Hours

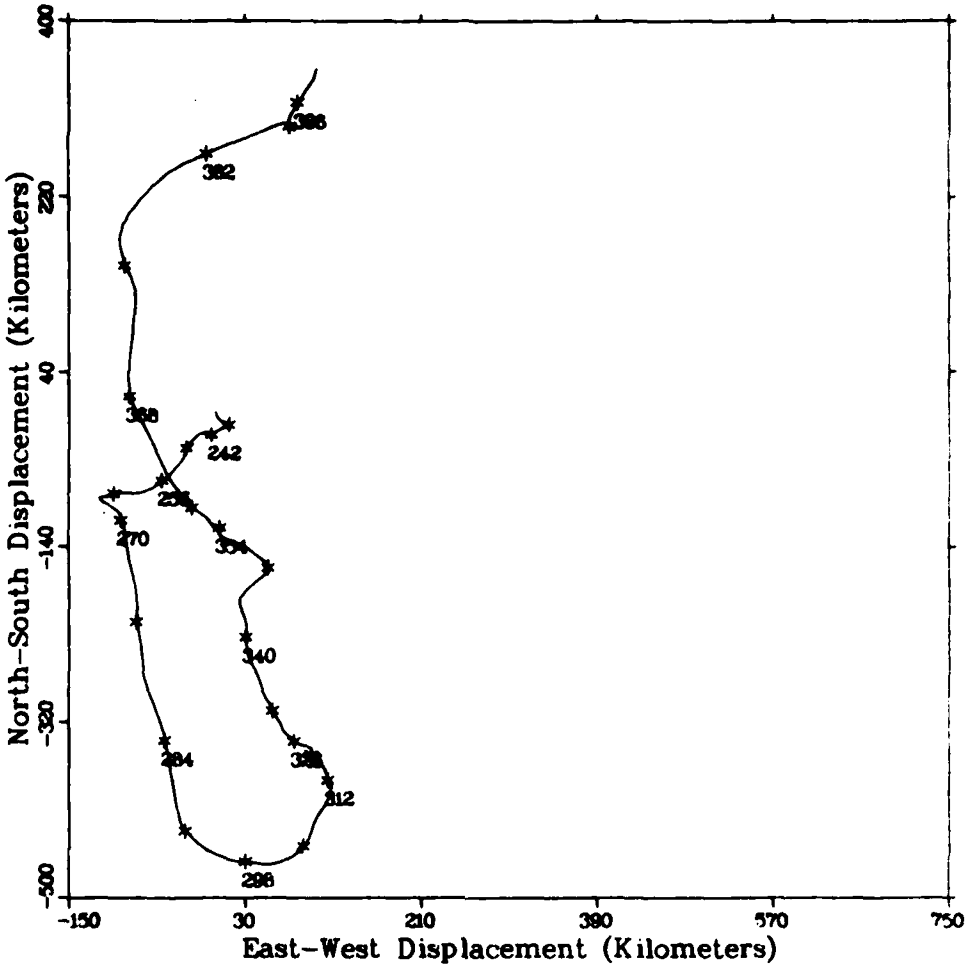
Array : C
Depth : 750
Start : 16 AUG 1978
End : 06 FEB 1979

Figure 133. Meter 410 current vector diagram



File	VACMF	Array	C
Meter	410	Depth	750
Latitude	13.08230	Start	16 AUG 1978
Longitude	61.99000	End	06 FEB 1979

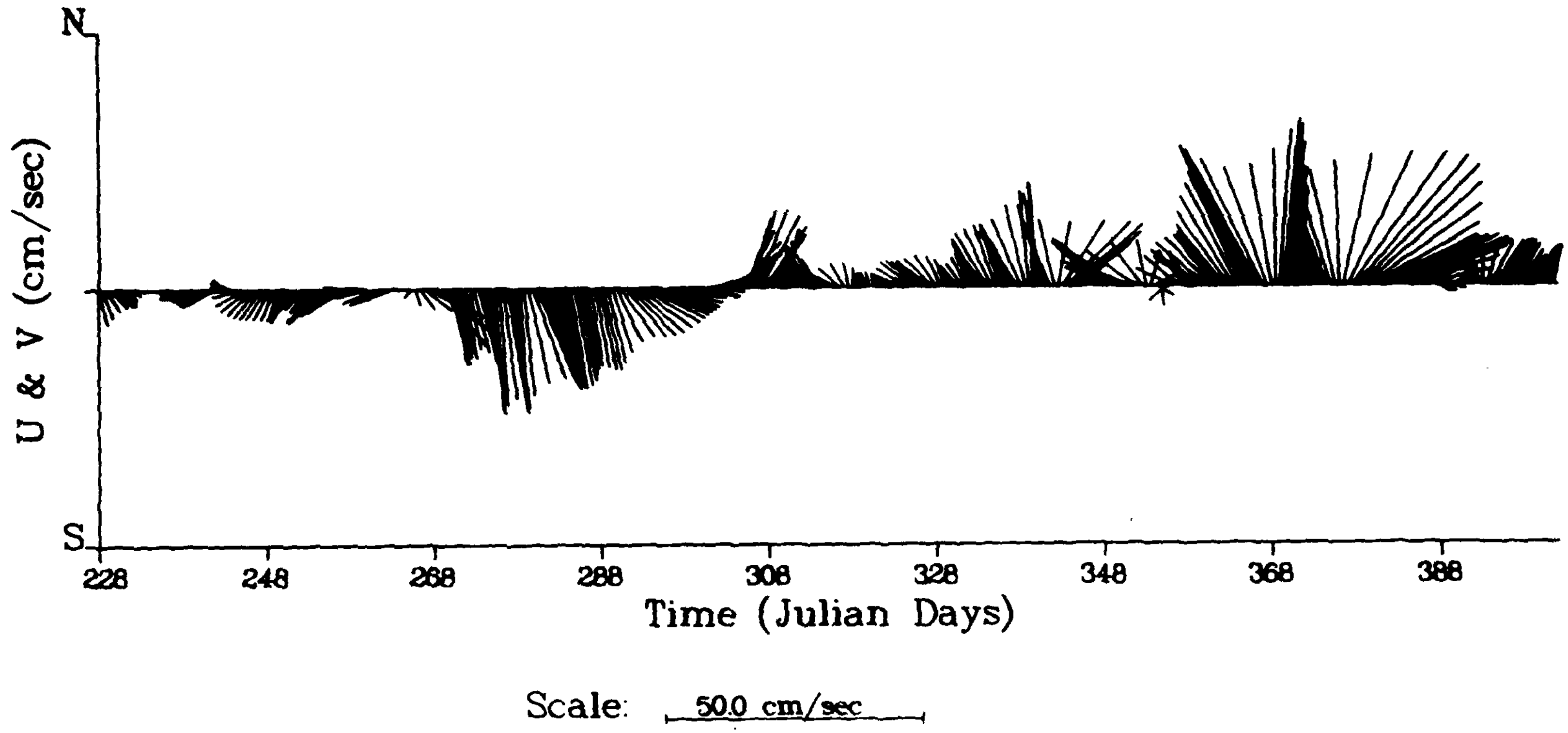
Figure 1[illegible]. Meter 410 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 228

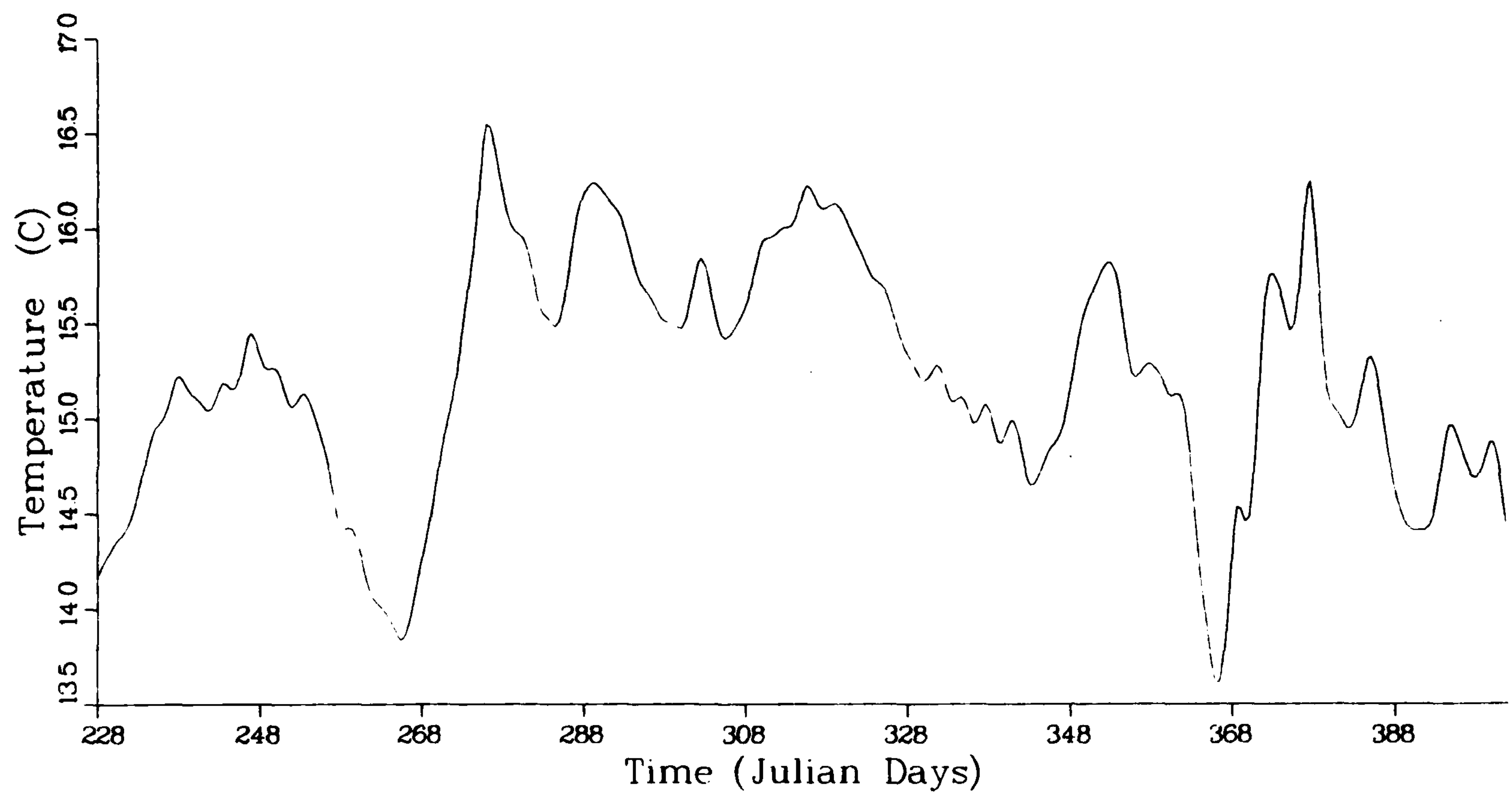
File :	VACMF	Array .	D
Meter :	289	Depth .	150
Latitude :	12.33000	Start :	16 AUG 1978
Longitude :	63.03000	End :	06 FEB 1979

Figure 135. Meter 289 progressive vector diagram

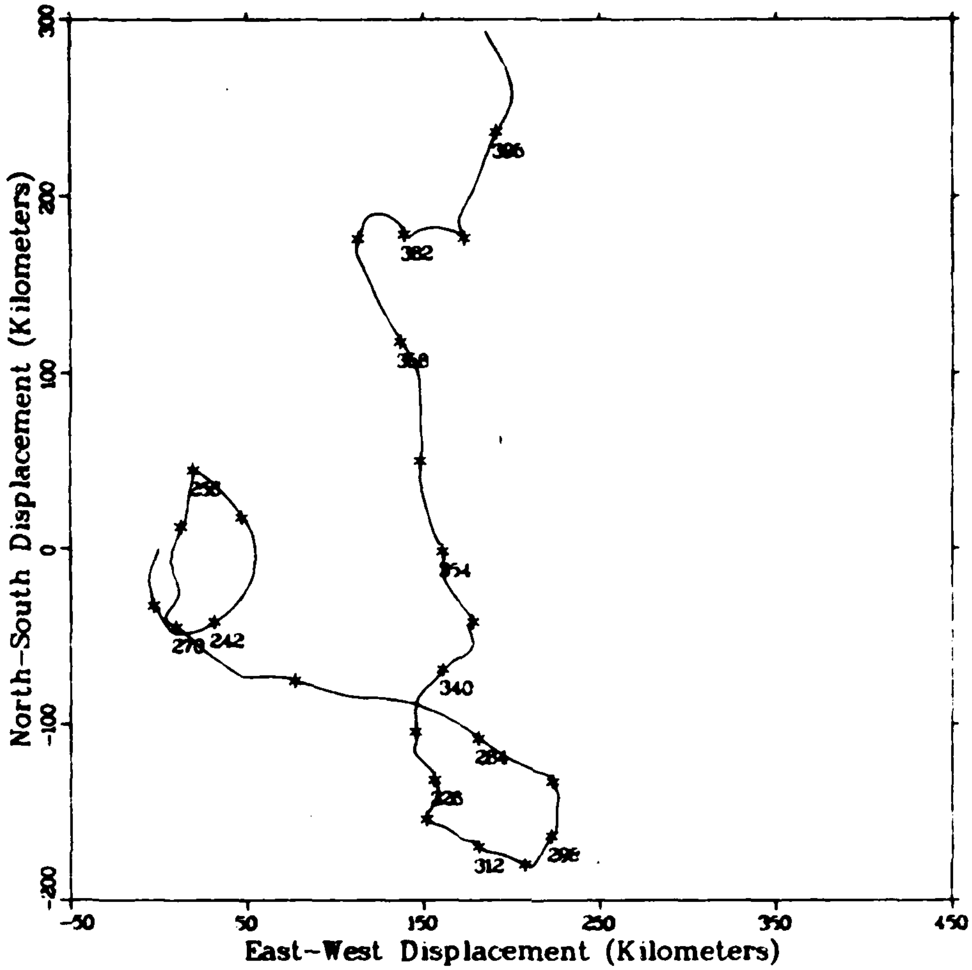


File :	VACMF	Array :	D
Meter	289	Depth :	150
Latitude :	12.33000	Start :	16 AUG 1978
Longitude :	63.03000	End :	06 FEB 1979
Time Interval:	12.0000 Hours		

Figure 136. Meter 289 current vector diagram



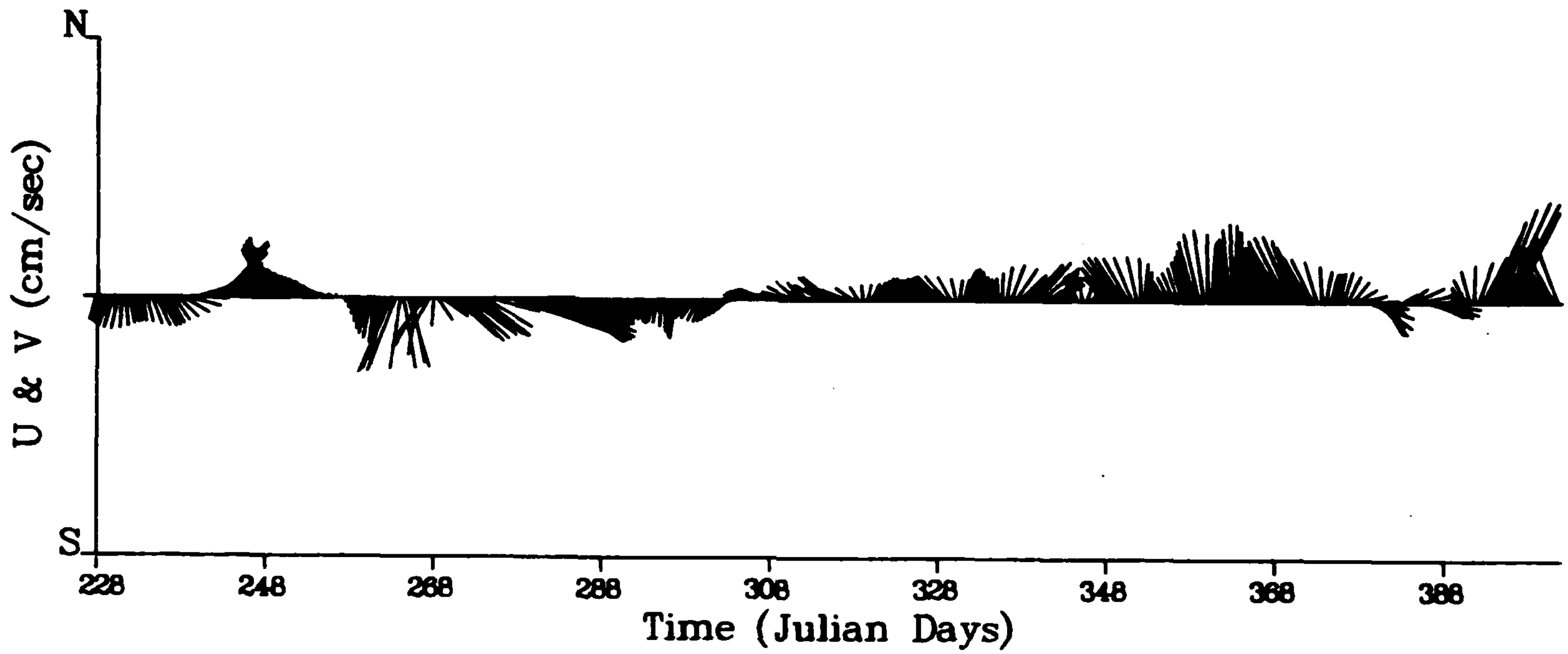
File	VACMF	Array	D
Meter	289	Depth	150
Latitude	12.33000	Start	16 AUG 1978
Longitude	63.03000	End	06 FEB 1979



* Every 168 Hours Starting At 0000 Julian Day 228

File :	VACMF	Array	D
Meter	407	Depth	750
Latitude	12.33000	Start	16 AUG 1978
Longitude	63.03000	End	06 FEB 1979

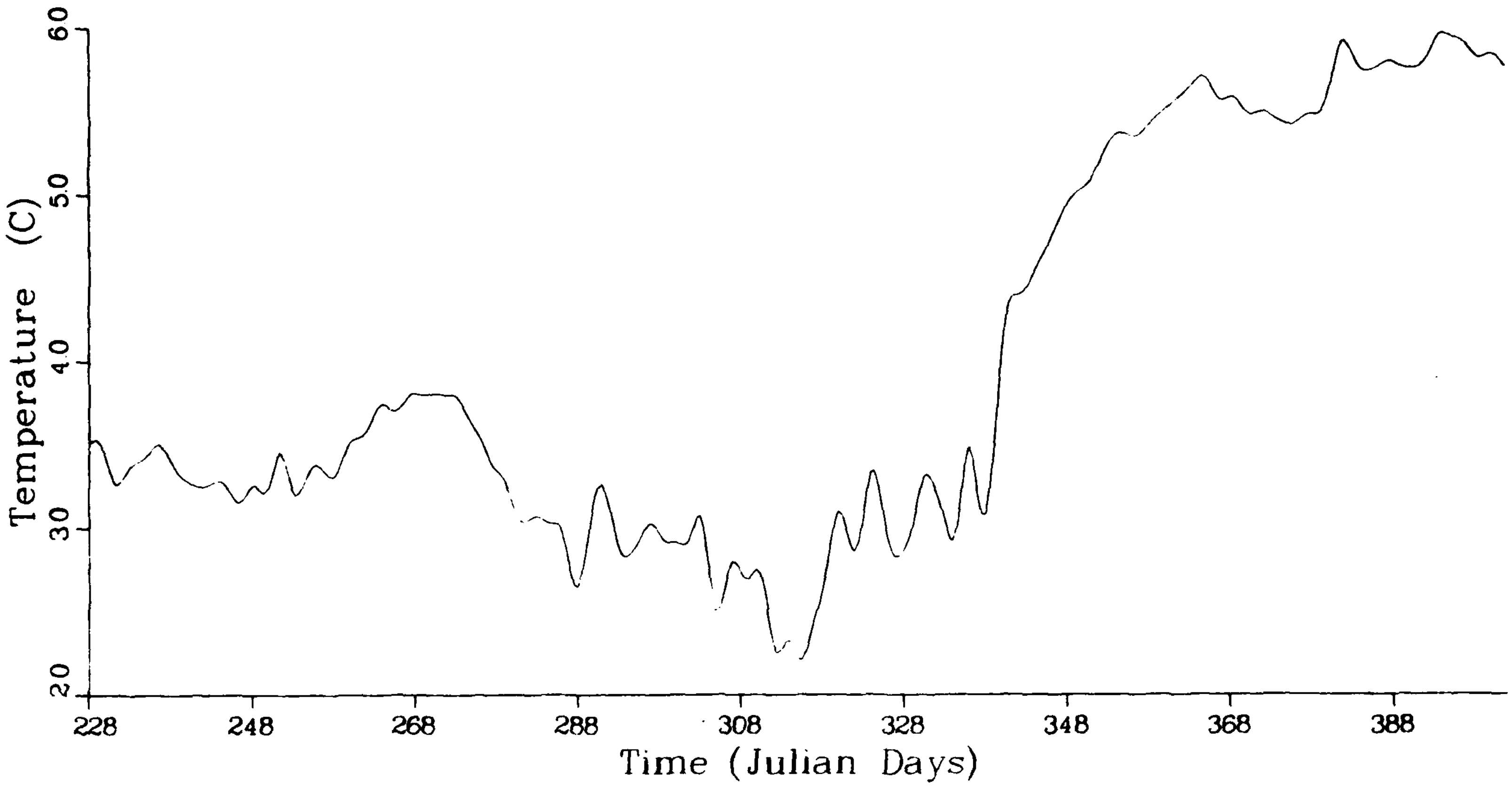
Figure 138. Meter 407 progressive vector diagram



Scale: 50.0 cm/sec

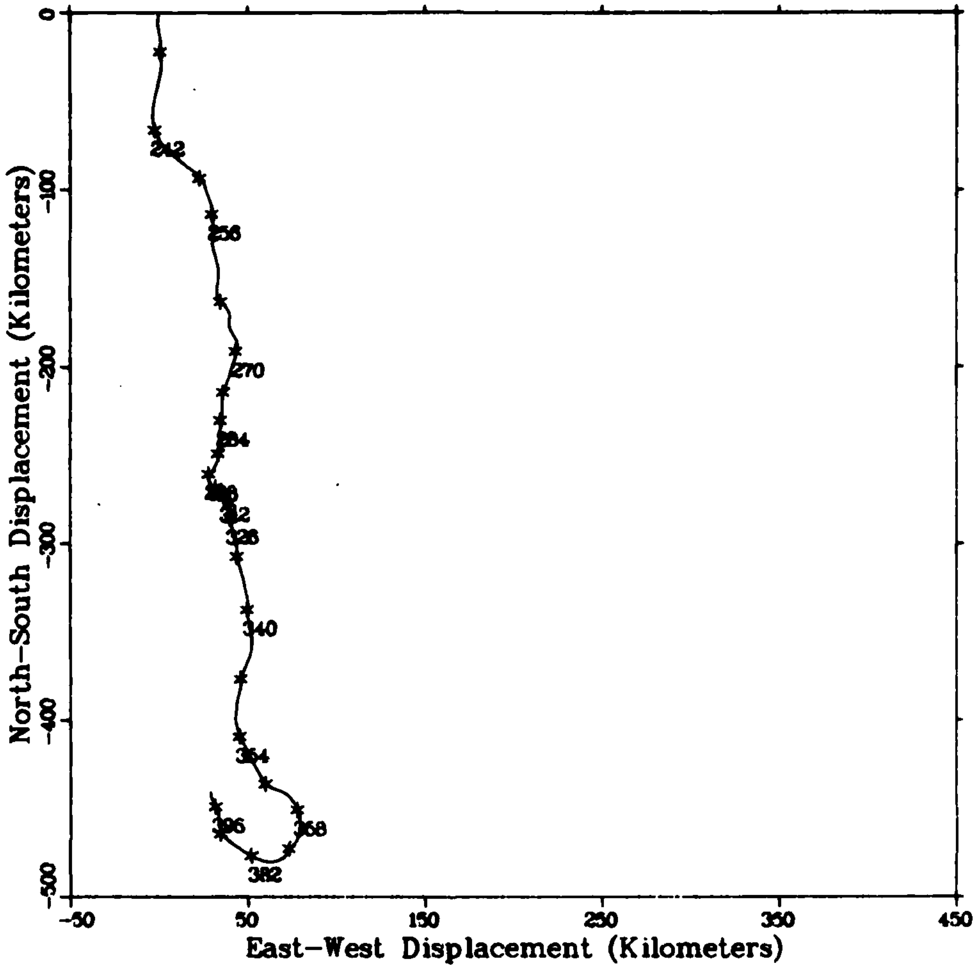
File :	VACMF	Array :	D
Meter :	407	Depth :	750
Latitude :	12.33000	Start :	16 AUG 1978
Longitude :	63.03000	End :	06 FEB 1979
Time Interval:	12.0000 Hours		

Figure 139. Meter 407 current vector diagram



File	VACMF	Array	D
Meter	407	Depth	750
Latitude	12.33000	Start	16 AUG 1978
Longitude	63.03000	End	06 FEB 1979

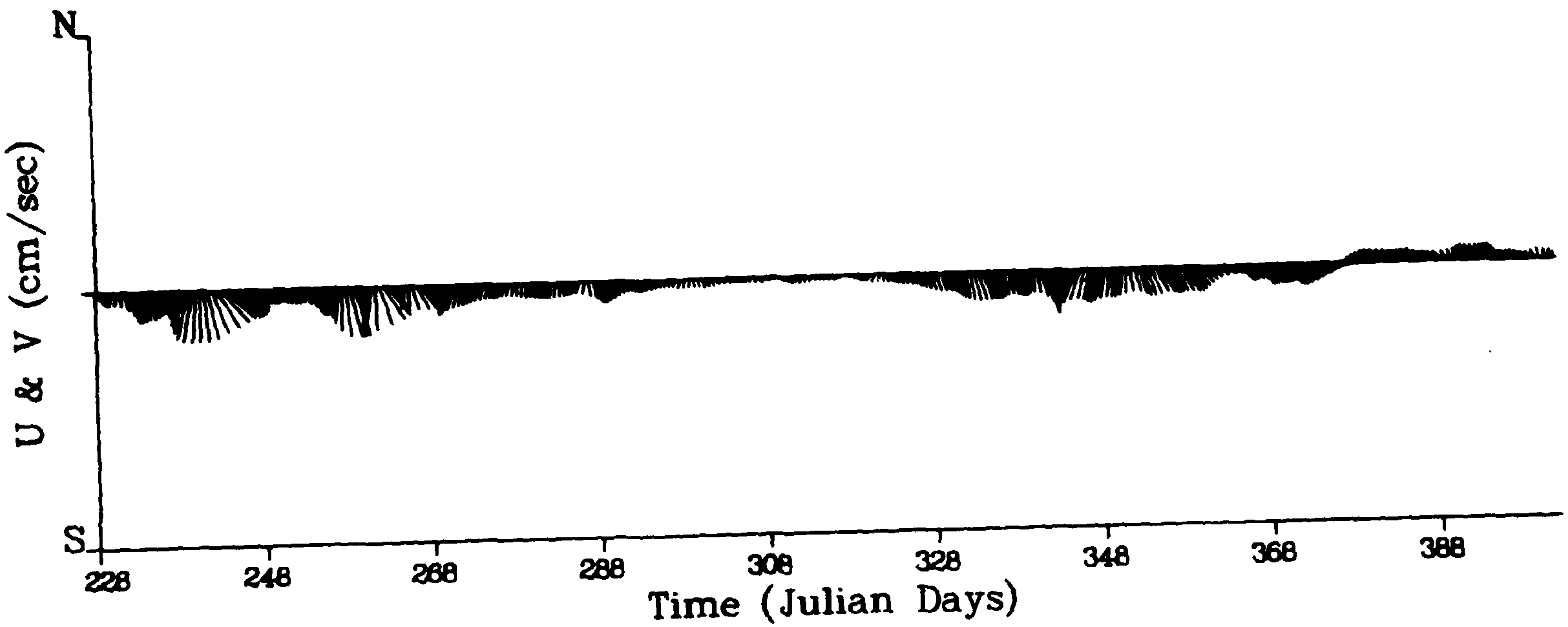
Figure 140. Meter 407 low-pass temperature time series



* Every 168 Hours Starting At 0000 Julian Day 228

File :	VACMF	Array :	D
Meter :	414	Depth :	1500
Latitude :	12.33000	Start :	16 AUG 1978
Longitude :	63.03000	End :	06 FEB 1979

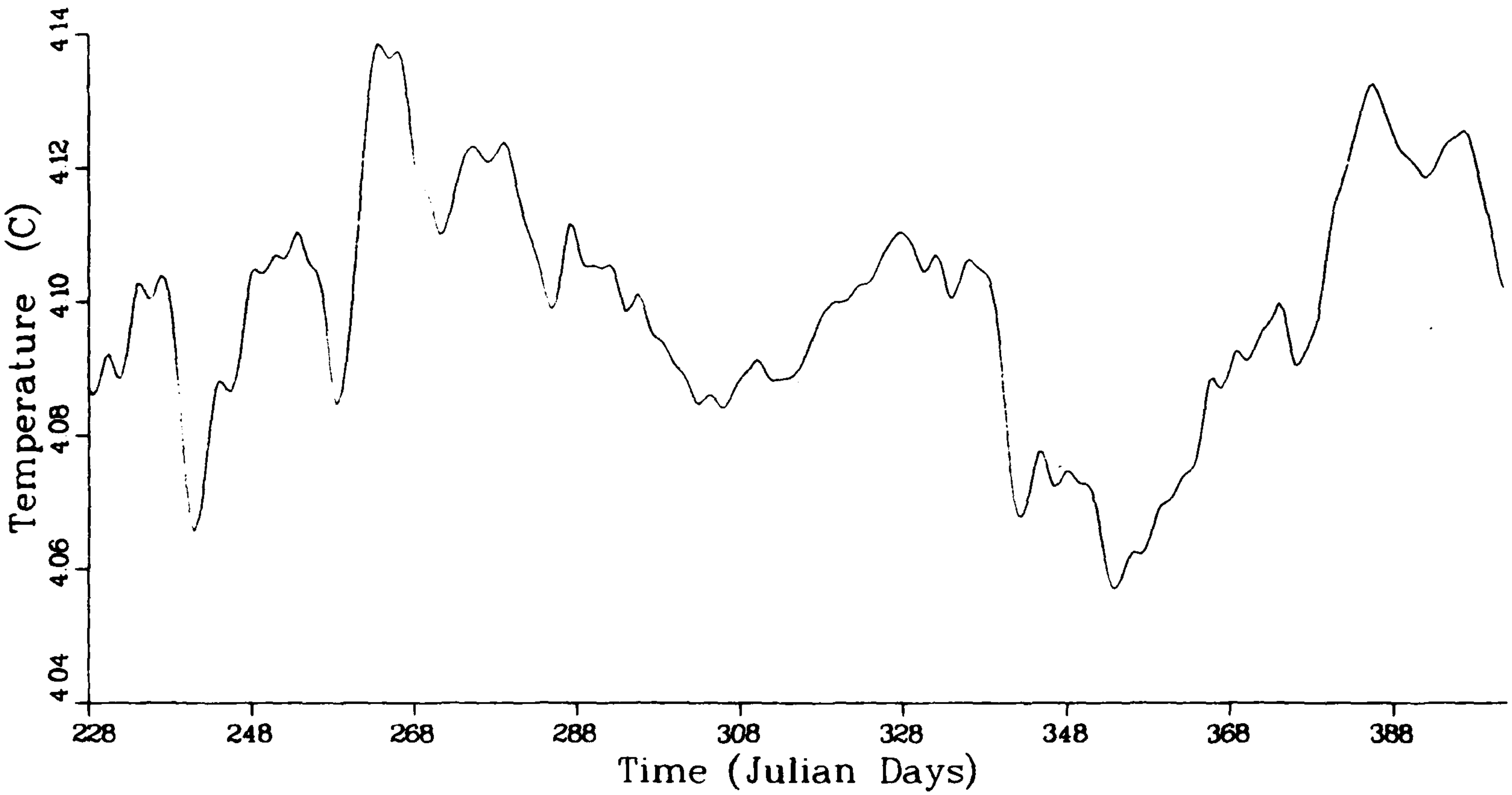
Figure 141. Meter 414 progressive vector diagram



Scale: 50.0 cm/sec

File :	VACMF	Array :	D
Meter :	414	Depth :	1500
Latitude :	12.33000	Start :	16 AUG 1978
Longitude :	63.03000	End :	06 FEB 1979
Time Interval:	12.0000 Hours		

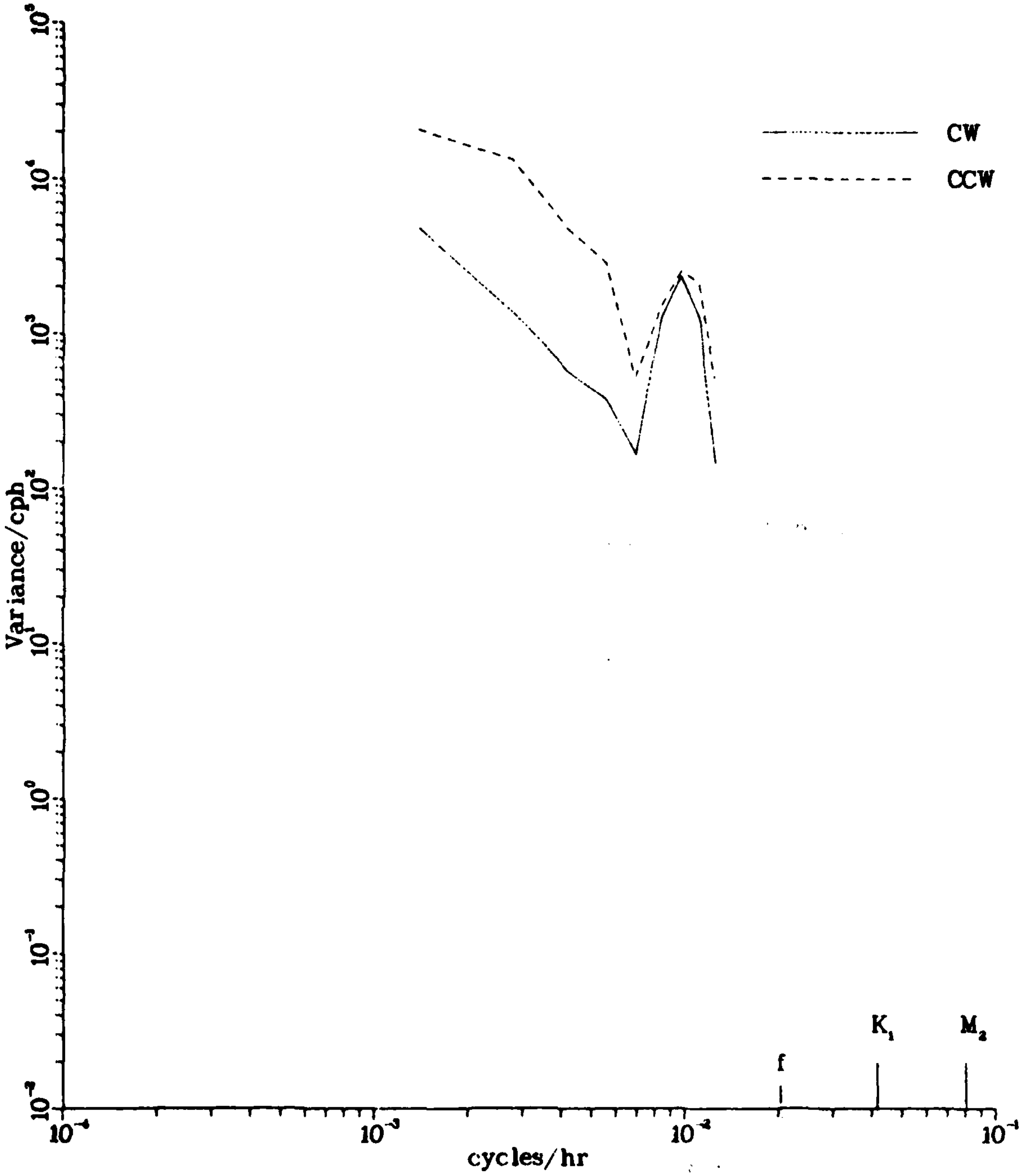
Figure 142. Meter 414 current vector diagram



File	VACMF	Array :	D
Meter	414	Depth :	1500
Latitude	12.33000	Start	16 AUG 1978
Longitude	63.03000	End :	06 FEB 1979

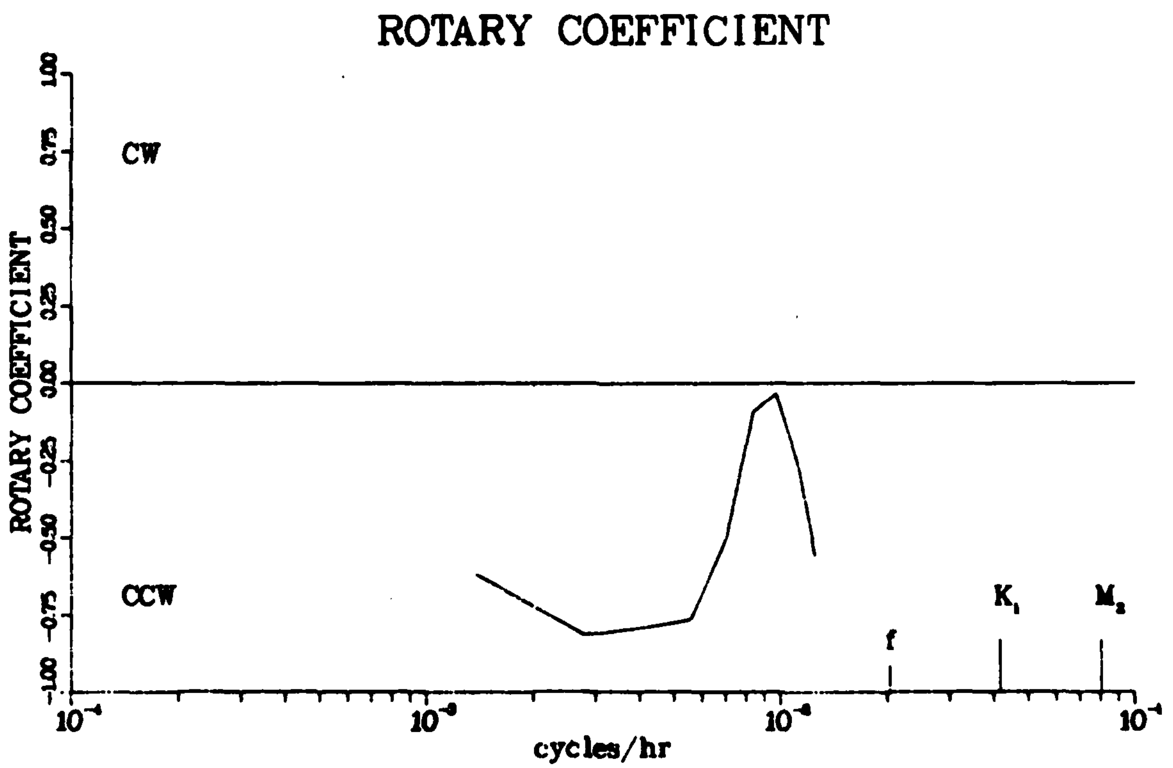
Figure 143. Meter 414 low-pass temperature time series

ROTARY SPECTRUM



Variable : U		Variable : V	
Depth :	193	Depth :	193
Meter :	406	Meter	406
Lat.	14.17300	Lat.	14.17300
Long	62.54450	Long	62.54450

Figure 144. Meter 406 low-pass rotary spectrum

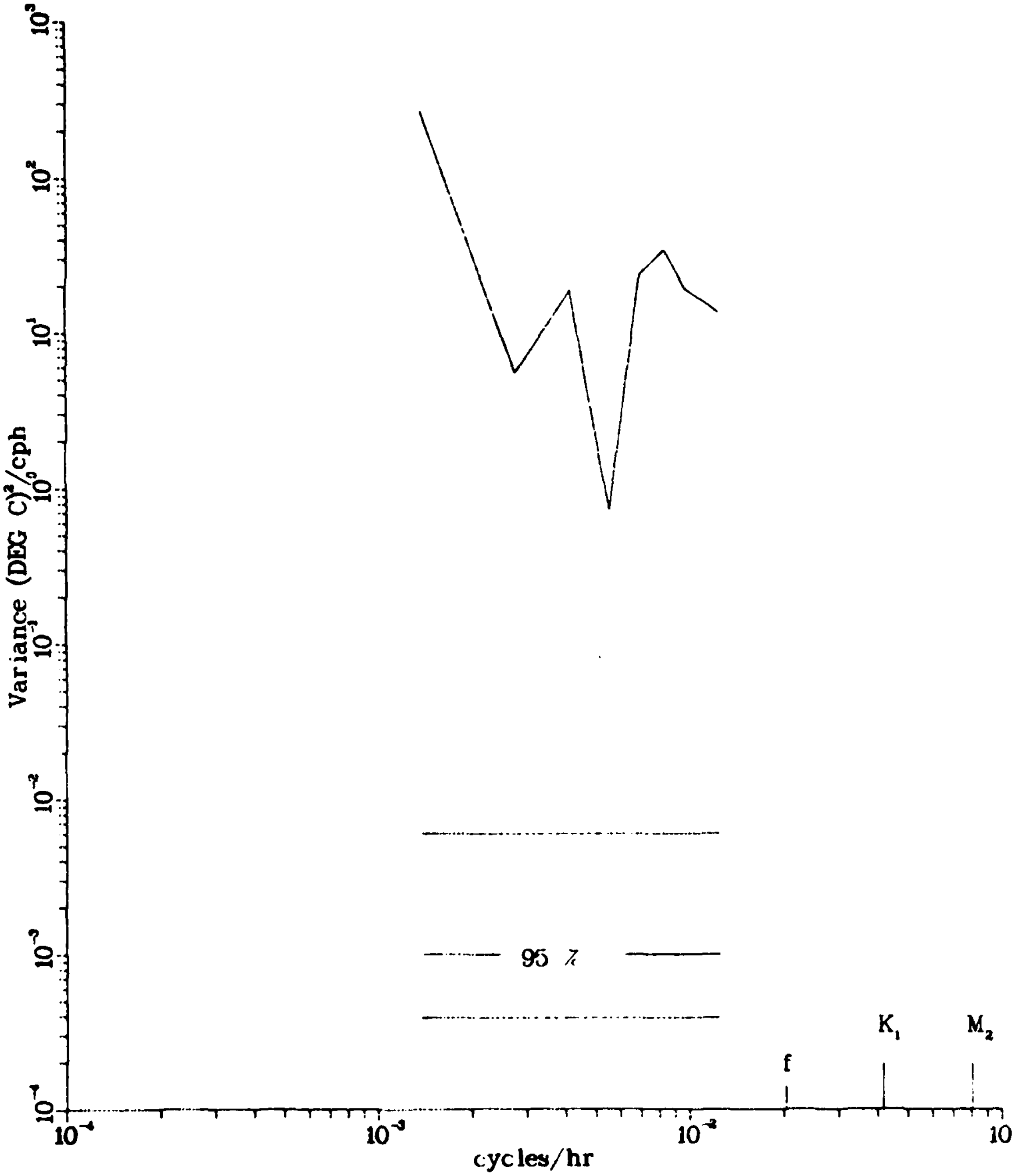


Variable : U
Depth : 193
Meter : 406
Lat. : 14.17300
Long 62.54450

Variable : V
Depth : 193
Meter . 406
Lat. 14.17300
Long 62.54450

Figure 145. Meter 406 low-pass rotary coefficient

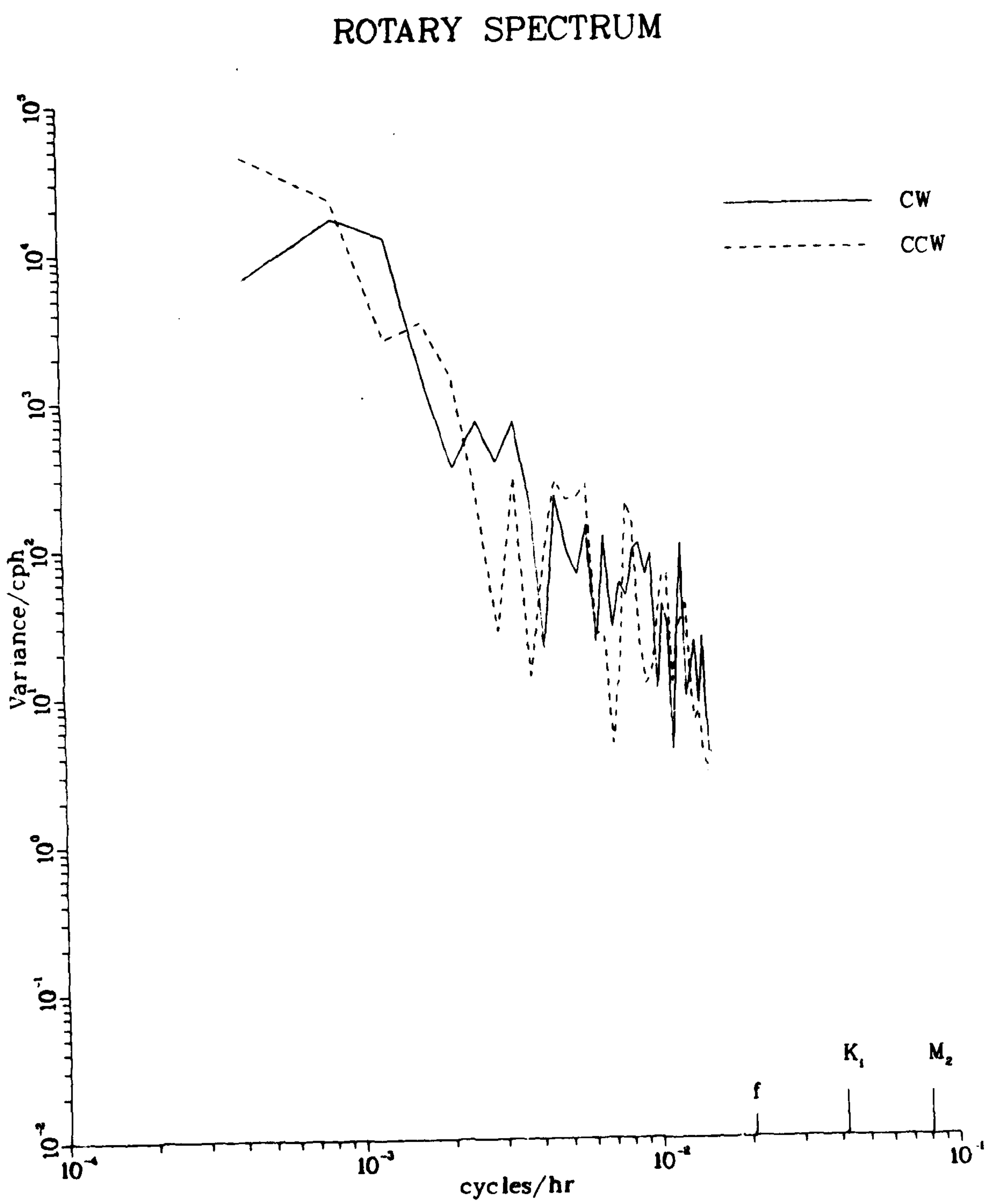
TEMPERATURE SPECTRUM



Variable : T
File . VACMF
Meter : 406
Lat. . 14.17300
Long 62.54450

Array A
Depth . 193
Start . 14 AUG 1978
End 13 SEP 1978

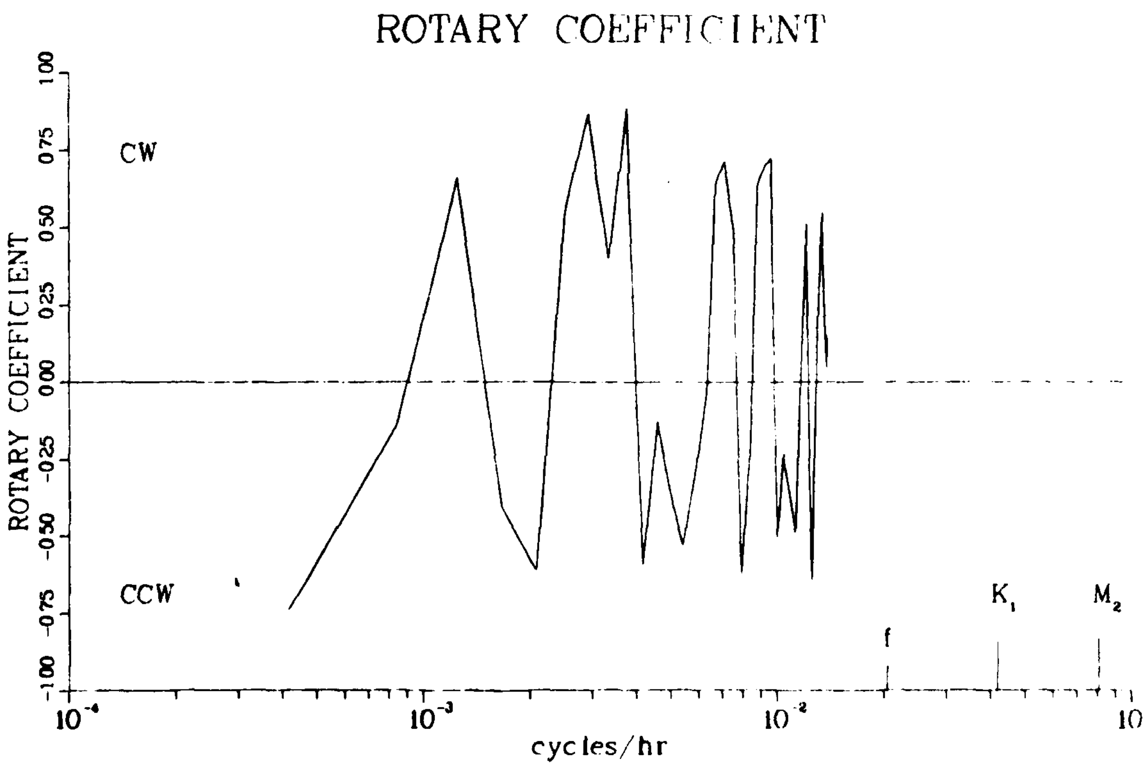
Figure 146. Meter 406 low-pass temperature spectrum



Variable U
Depth 393
Meter 416
Lat 14.17300
Long 62.54450

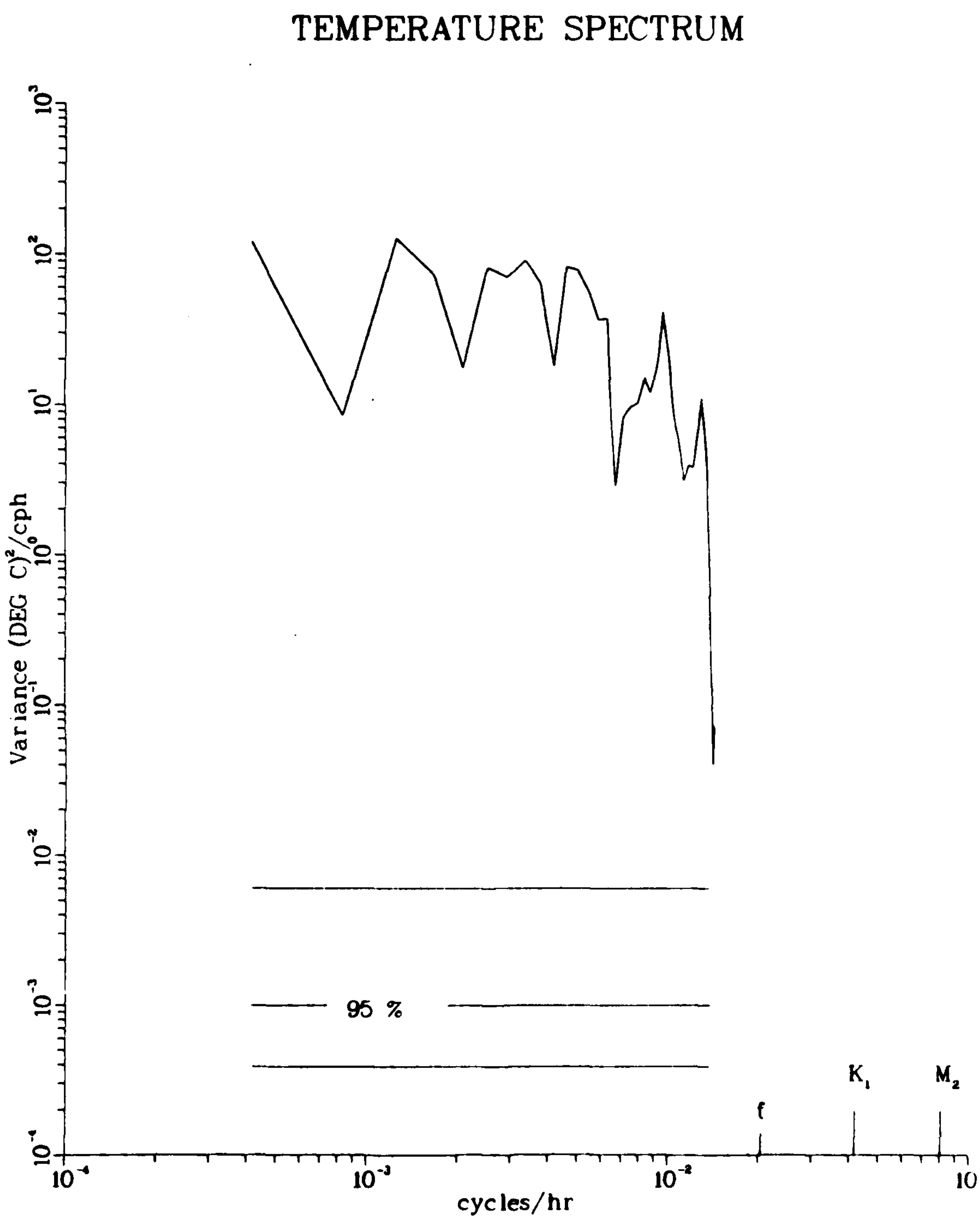
Variable V
Depth 393
Meter 416
Lat 14.17300
Long 62.54450

Figure 147. Meter 416 low-pass rotary spectrum



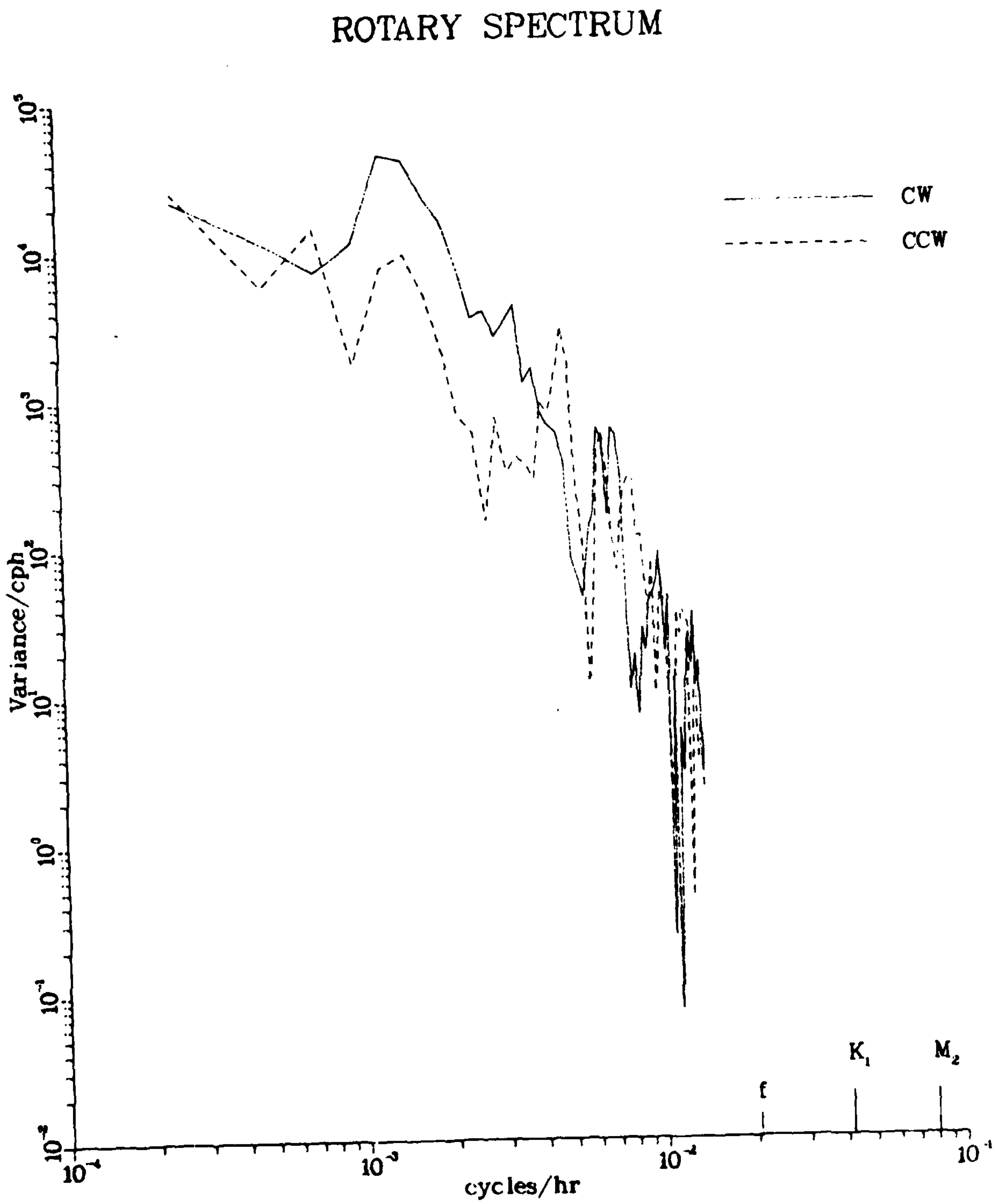
Variable	U	Variable	V
Depth	393	Depth	393
Meter	416	Meter	416
Lat	14.17300	Lat	14.17300
Long	62.54450	Long	62.54450

Figure 148. Meter 416 low-pass rotary coefficient



Variable	T	Array	A
File	VACMF	Depth	393
Meter	416	Start	14 AUG 1978
Lat	14.17300	End	22 NOV 1978
Long	62.54450		

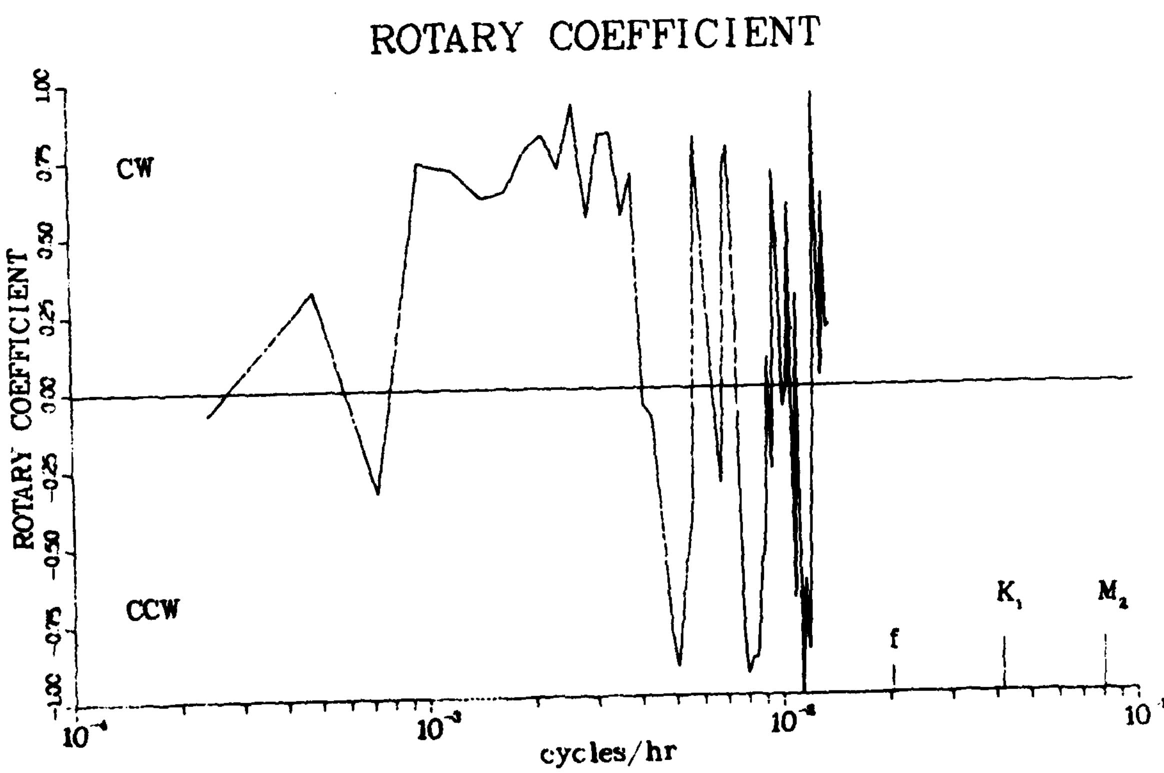
Figure 149. Meter 416 low-pass temperature spectrum



Variable . U
Depth . 793
Meter . 412
Lat. . 14.17300
Long 62.54450

Variable . V
Depth . 793
Meter 412
Lat. 14.17300
Long 62.54450

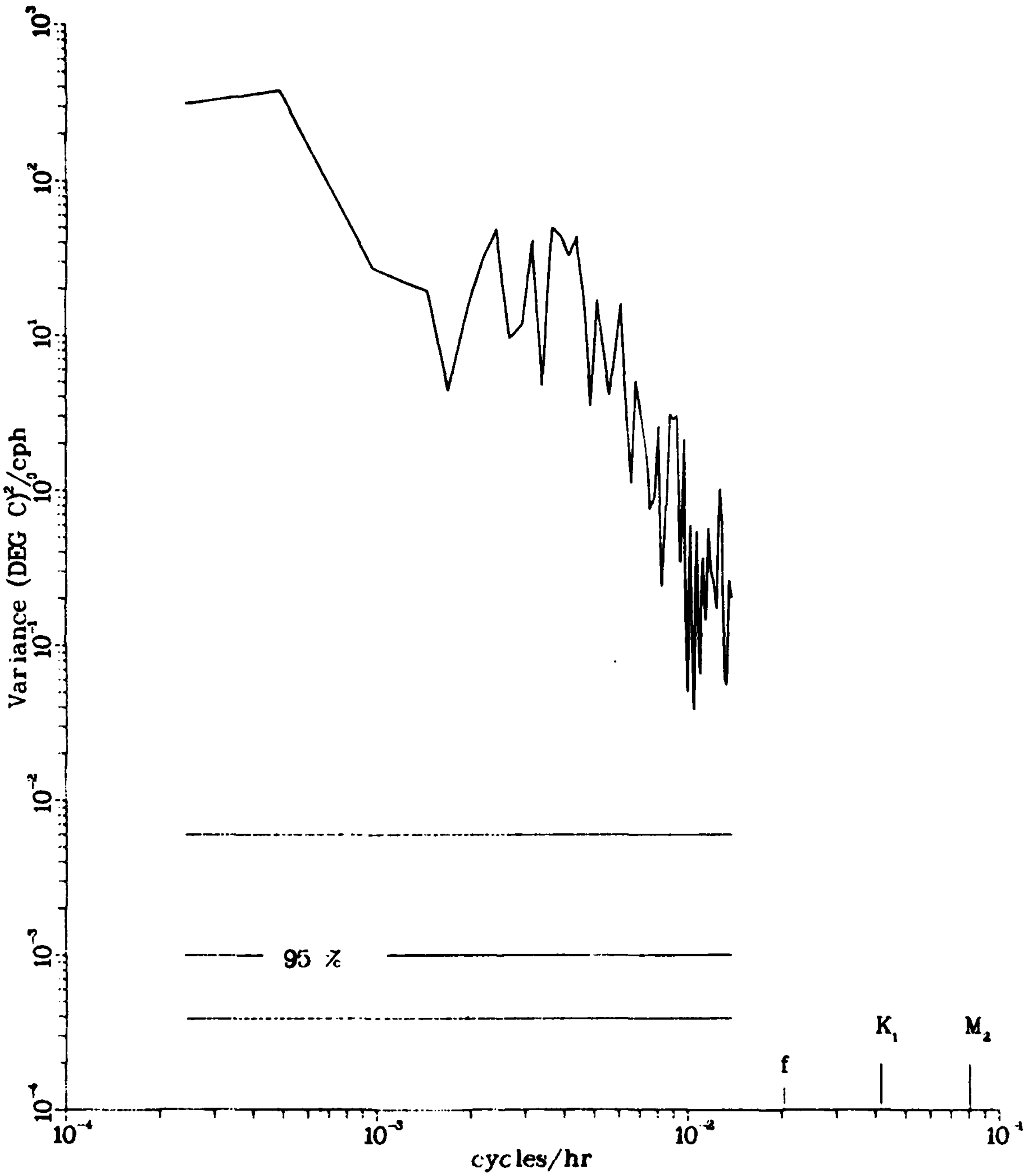
Figure 150. Meter 412 low-pass rotary spectrum



Variable :	U	Variable :	V
Depth :	793	Depth :	793
Meter :	412	Meter :	412
Lat.	14.17300	Lat.	14.17300
Long	62.54450	Long	62.54450

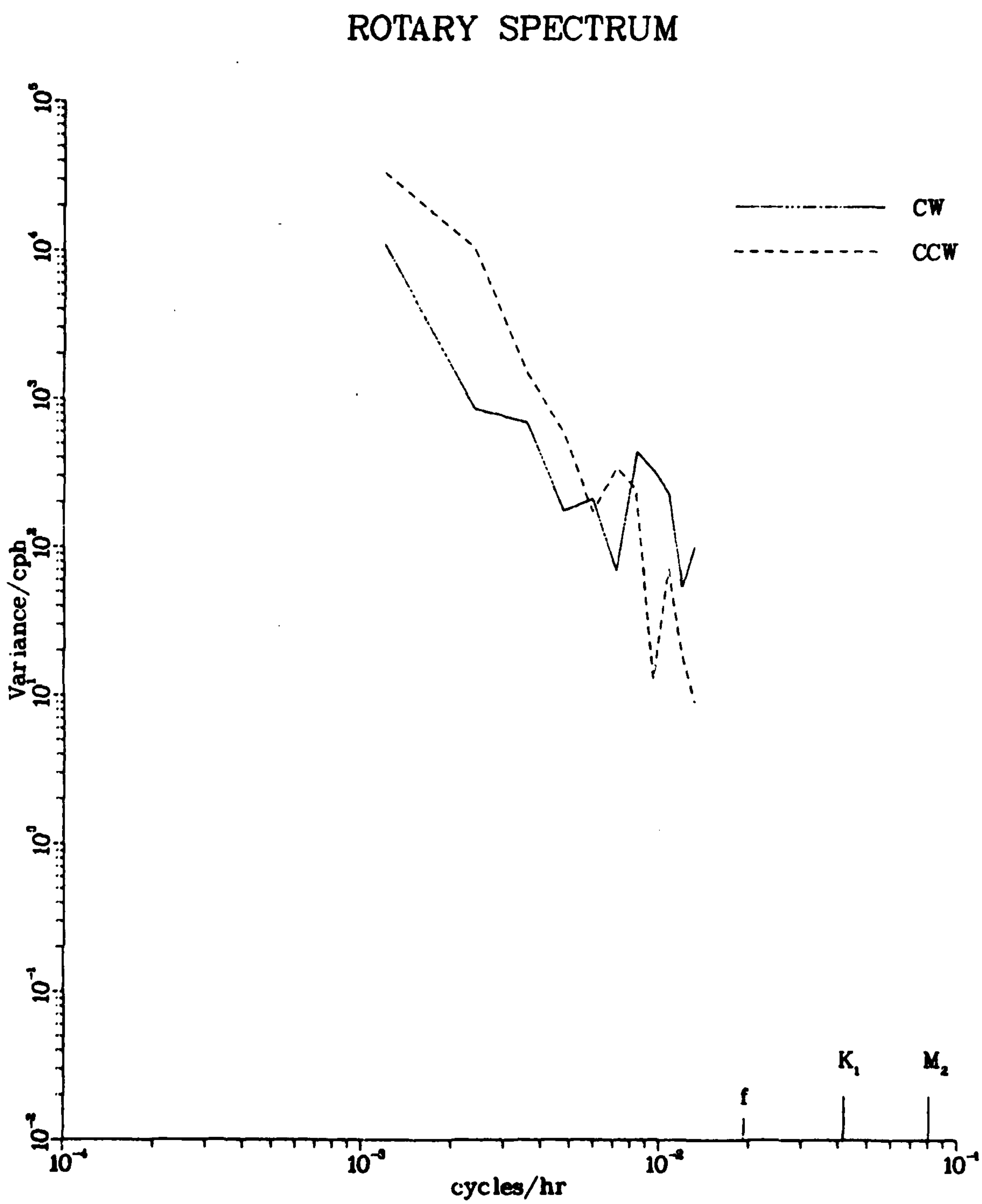
Figure 151. Meter 412 low-pass rotary coefficient

TEMPERATURE SPECTRUM



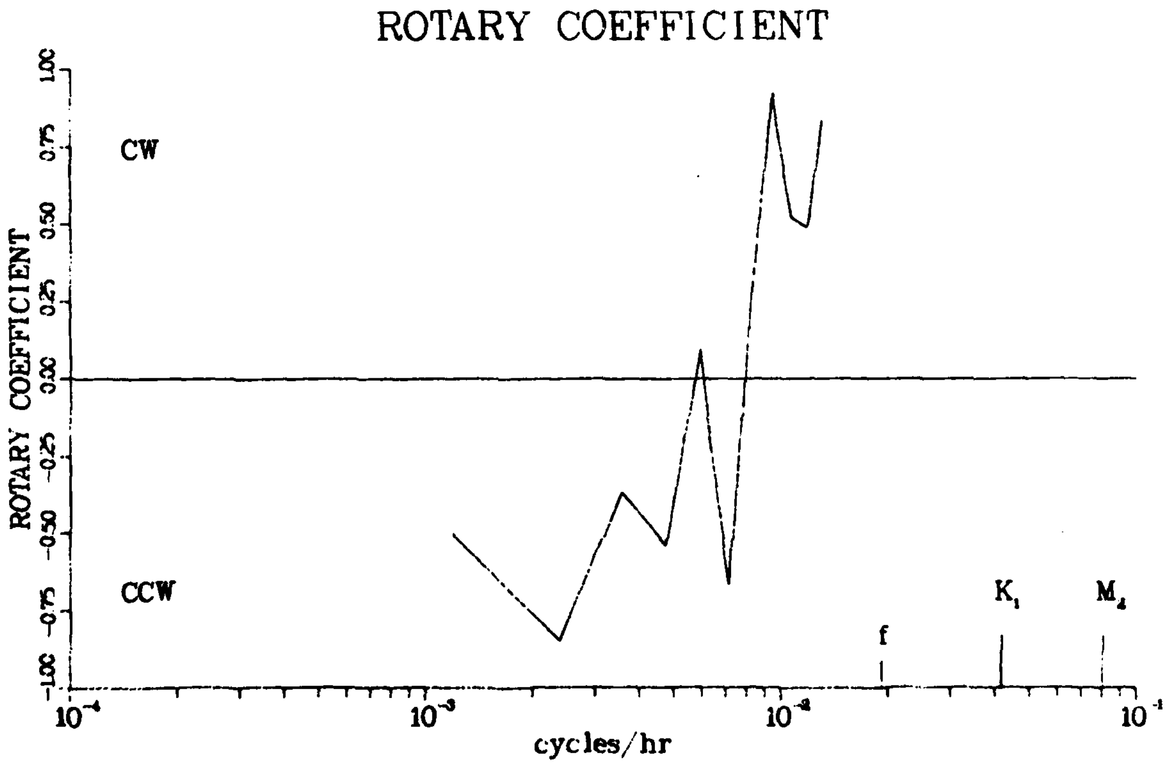
Variable :	T	Array	A
File :	VACMF	Depth	793
Meter	412	Start	14 AUG 1978
Lat.	14.17300	End	2 FEB 1979
Long	62.54450		

Figure 152. Meter 412 low-pass temperature spectrum



Variable : U		**Variable** : V	
Depth :	193	**Depth** :	193
Meter :	219	**Meter** .	219
Lat. :	13.40500	**Lat.** .	13.40500
Long	62.44900	**Long**	62.44900

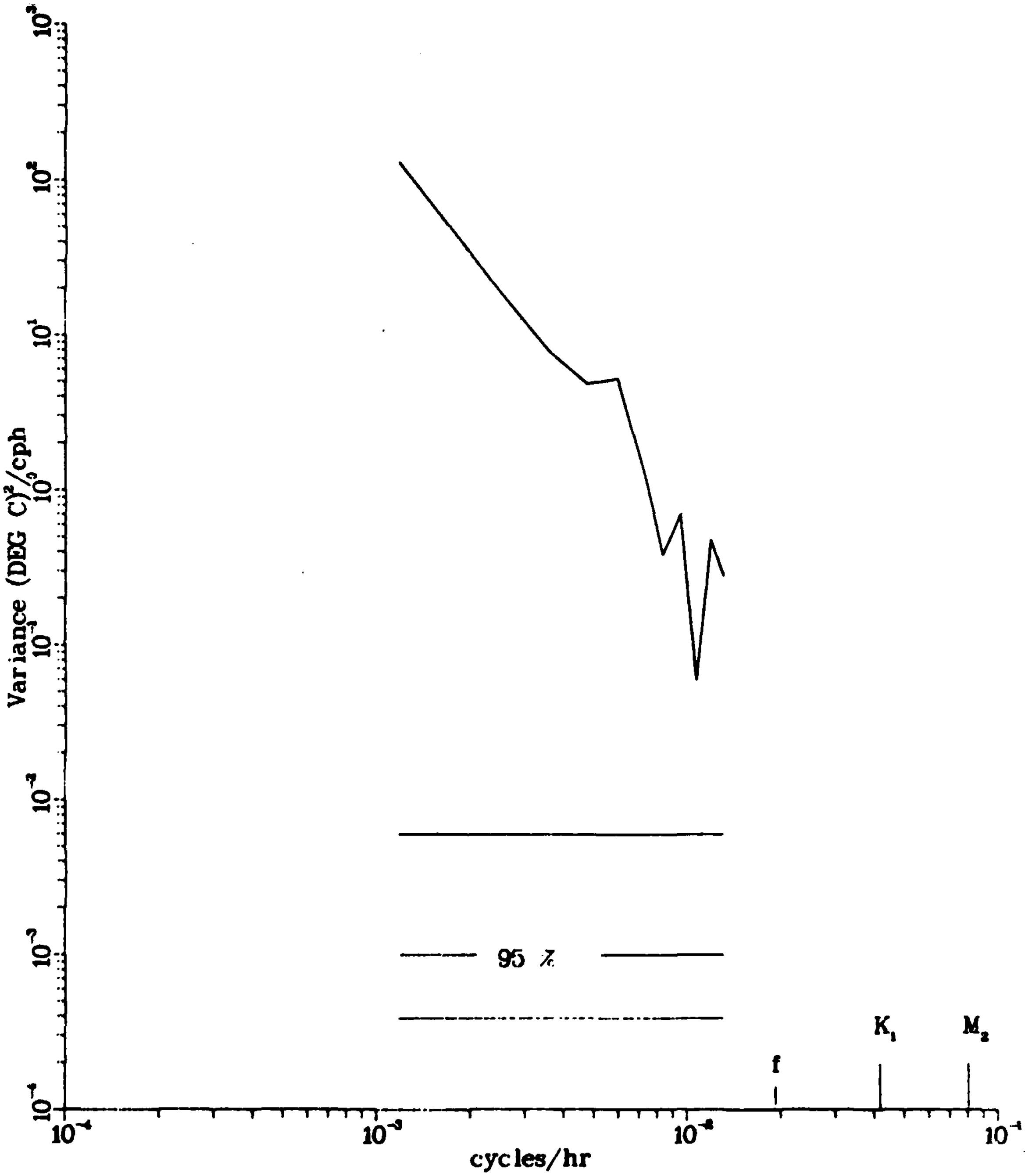
Figure 153. Meter 219 low-pass rotary spectrum



Variable : U		Variable : V	
Depth :	193	Depth :	193
Meter :	219	Meter :	219
Lat. :	13.40500	Lat.	13.40500
Long	62.44900	Long	62.44900

Figure 154. Meter 219 low-pass rotary coefficient

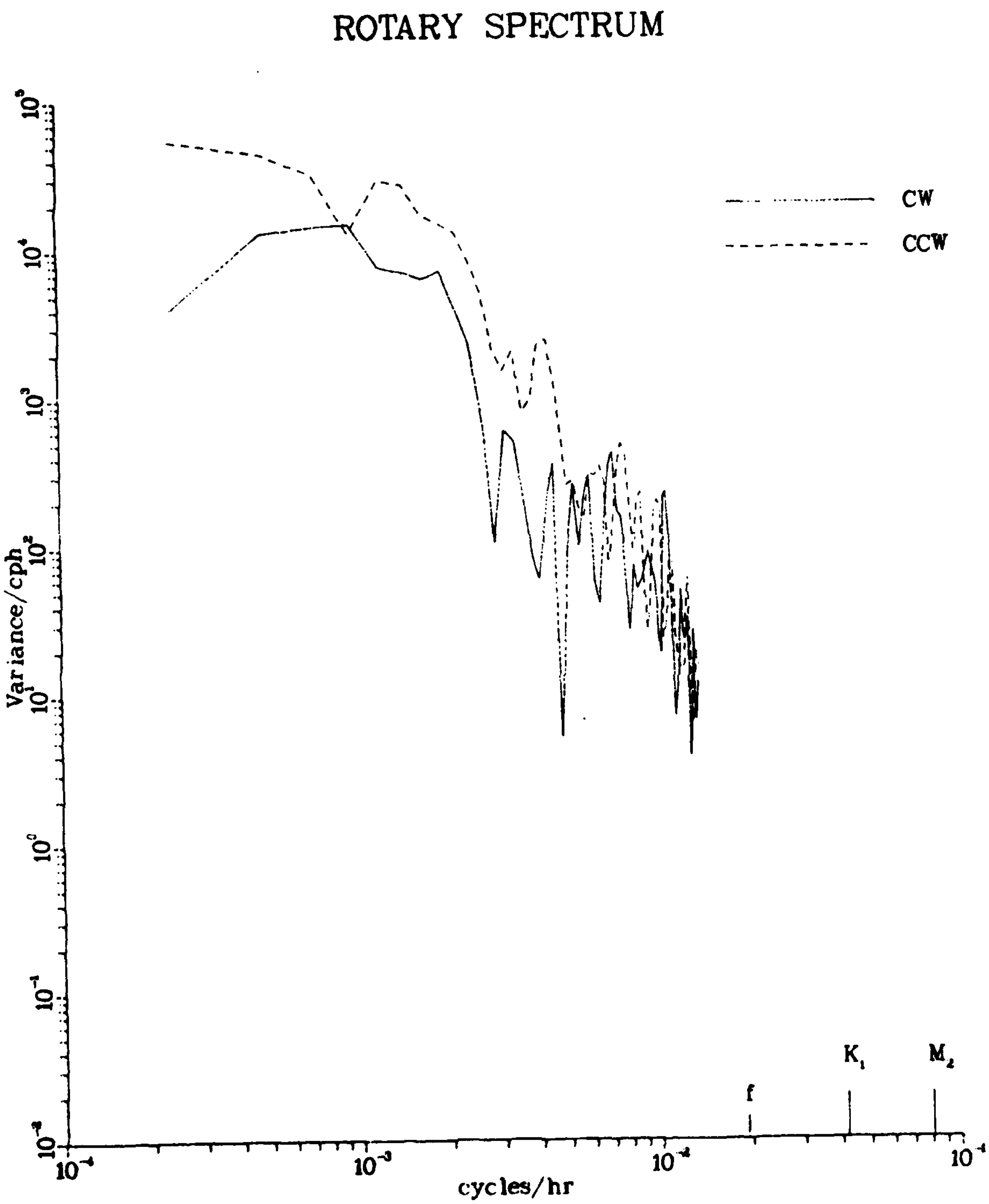
TEMPERATURE SPECTRUM



Variable : T
File : VACMF
Meter : 219
Lat. : 13.40500
Long 62.44900

Array : B
Depth : 193
Start : 15 AUG 1978
End : 19 SEP 1978

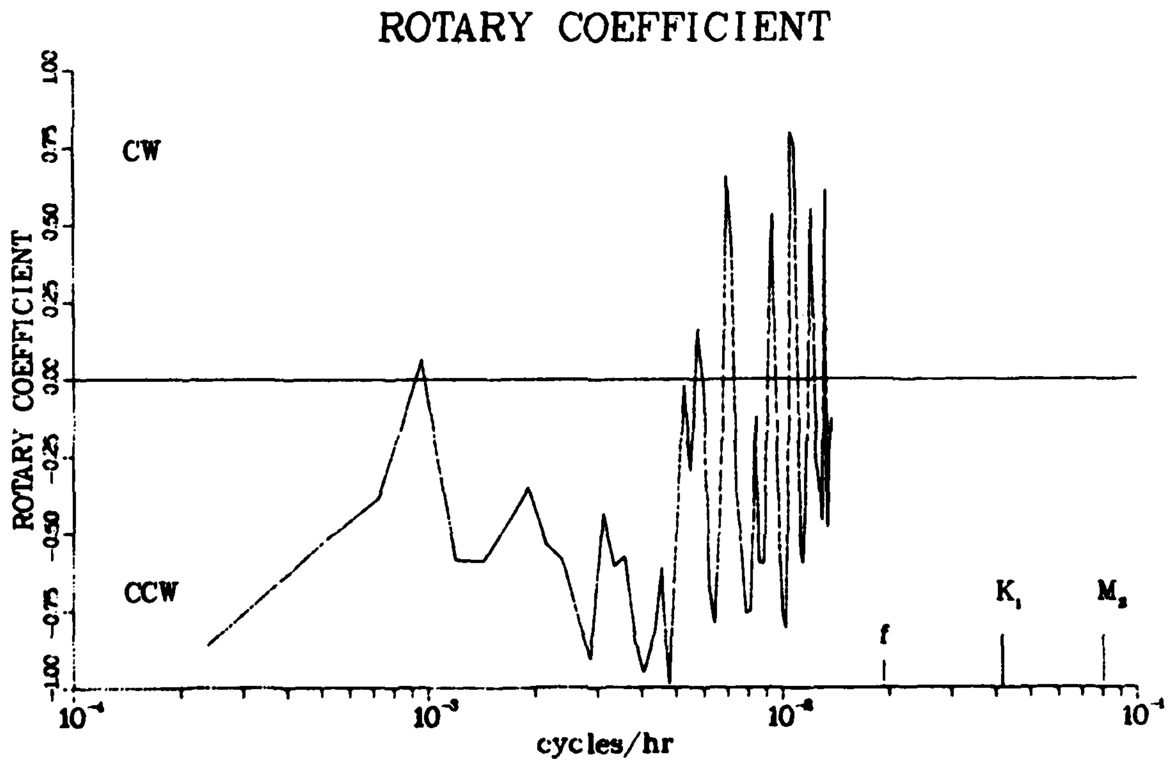
Figure 155. Meter 219 low-pass temperature spectrum



Variable . U
Depth . 393
Meter 298
Lat. 13.40500
Long 62.44900

Variable . V
Depth . 393
Meter 298
Lat. 13.40500
Long 62.44900

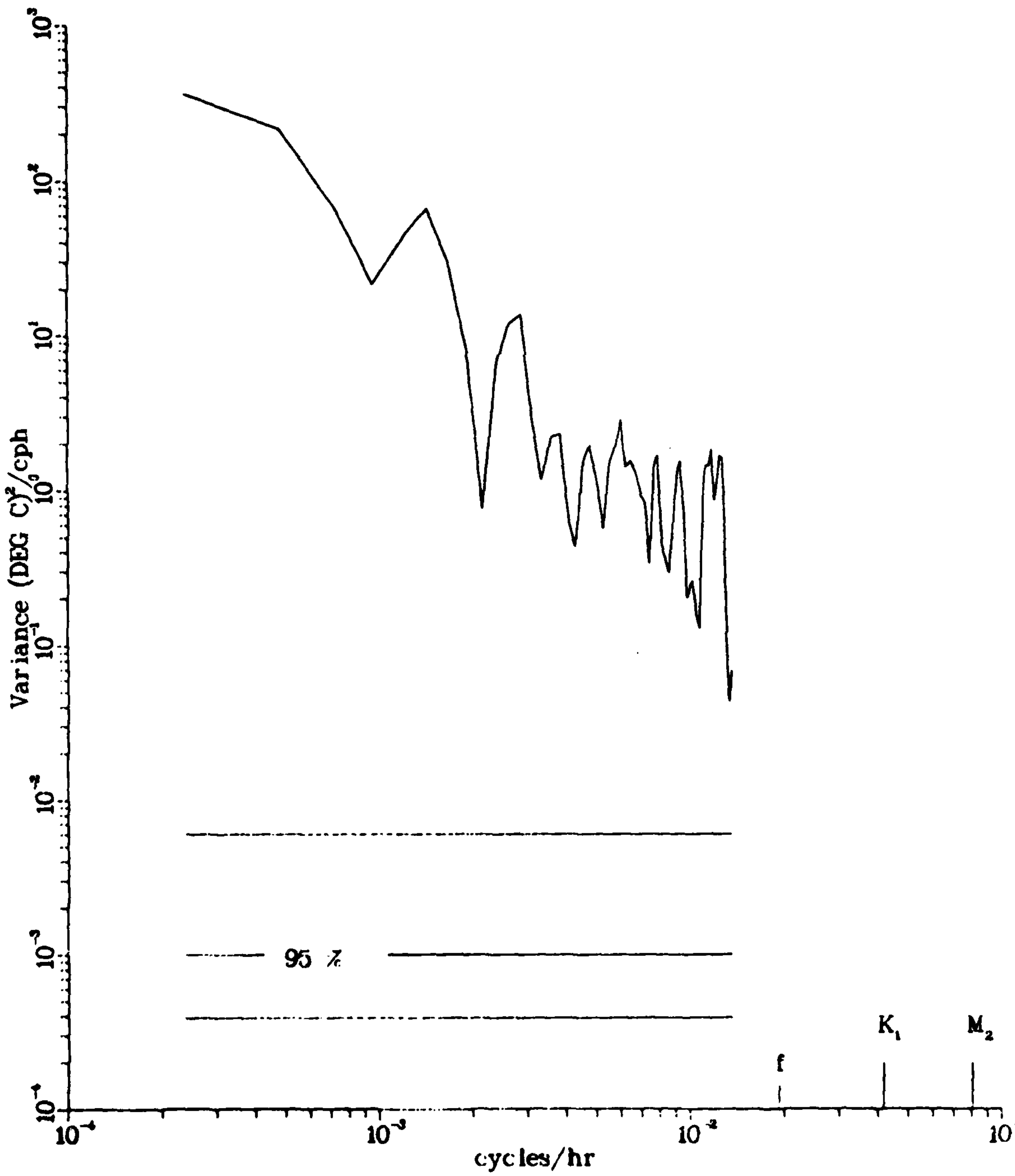
Figure 156. Meter 298 low-pass rotary spectrum



Variable :	U	Variable :	V
Depth :	393	Depth .	393
Meter .	298	Meter	298
Lat. .	13.40500	Lat.	13.40500
Long	62.44900	Long	62.44900

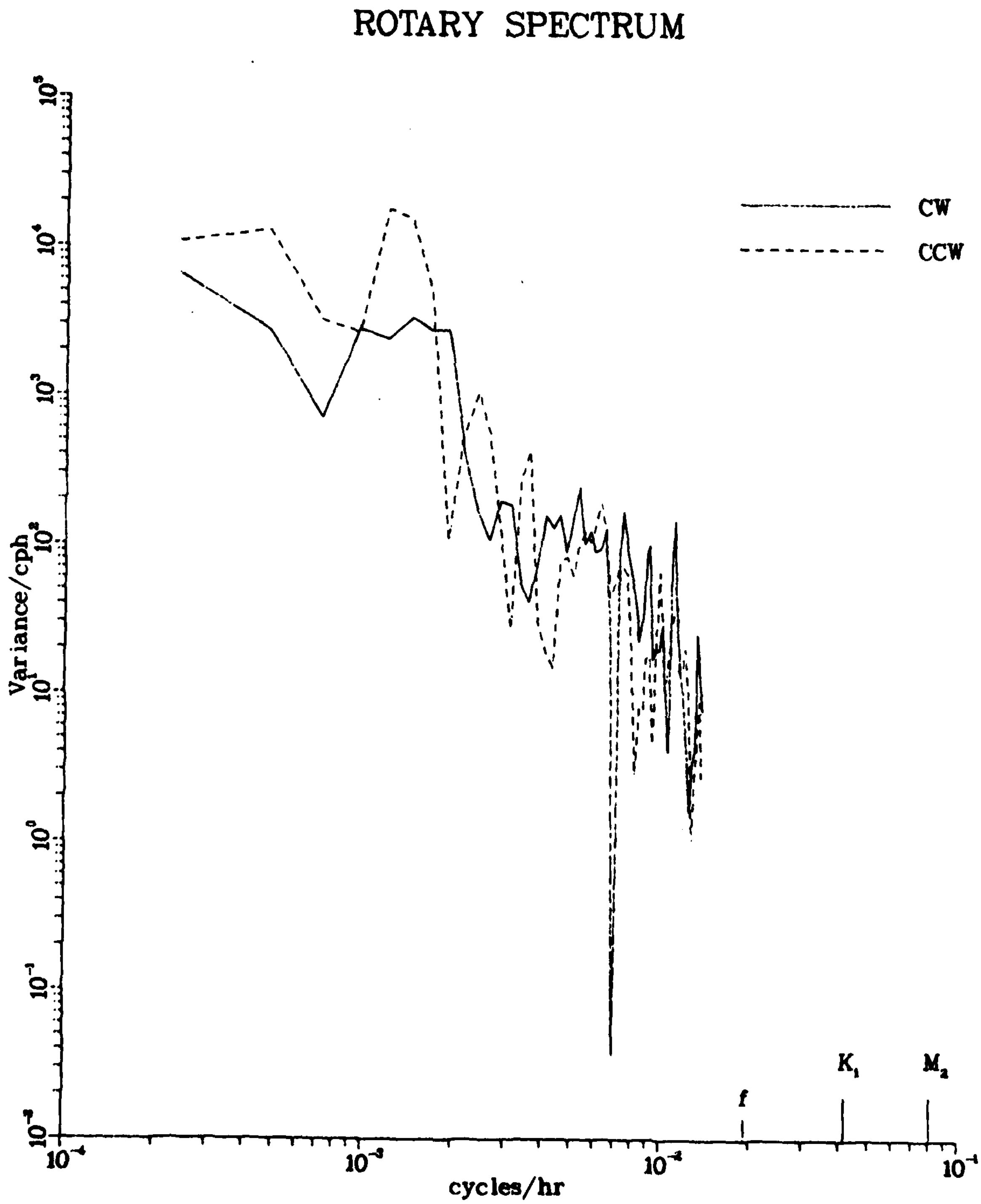
Figure 157. Meter 298 low-pass rotary coefficient

TEMPERATURE SPECTRUM



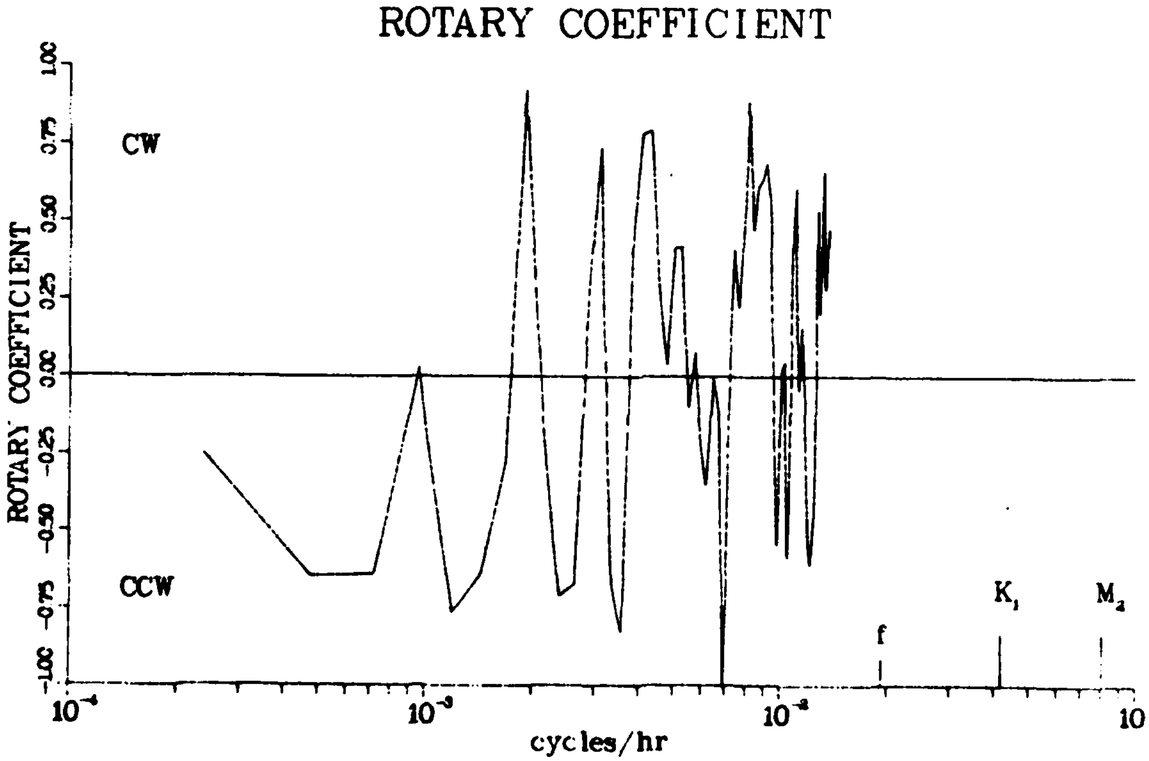
Variable	T	Array	B
File	VACMF	Depth	393
Meter	298	Start	15 AUG 1978
Lat.	13.40500	End	5 FEB 1979
Long	62.44900		

Figure 158. Meter 298 low-pass temperature spectrum



Variable :	**U**	**Variable** .	**V**
Depth :	793	**Depth** .	793
Meter	417	**Meter**	417
Lat.	13.40500	**Lat.**	13.40500
Long	62.44900	**Long**	62.44900

Figure 159. Meter 417 low-pass rotary spectrum

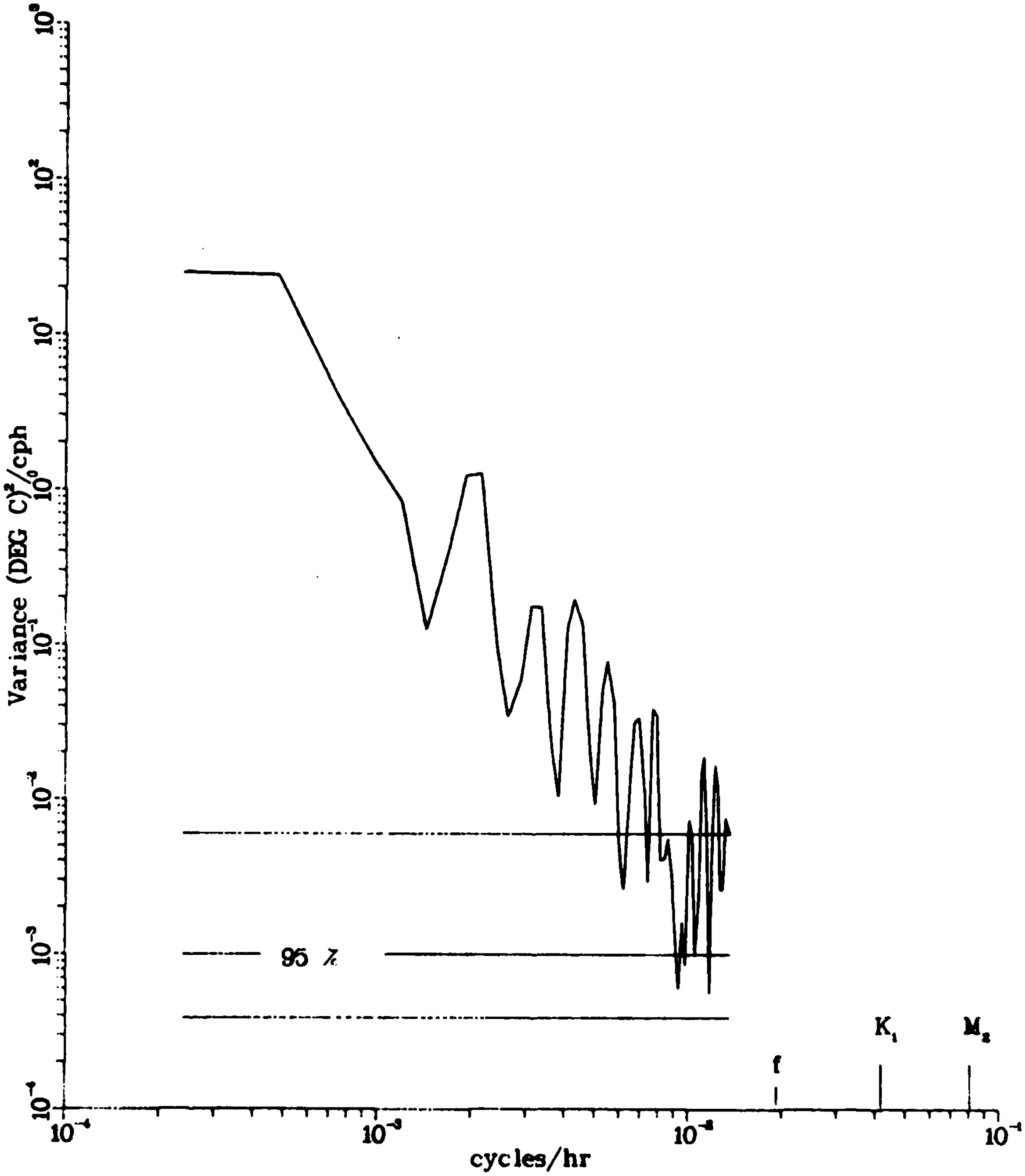


Variable : U
Depth : 793
Meter . 417
Lat. 13.40500
Long 62.44900

Variable V
Depth : 793
Meter 417
Lat. 13.40500
Long 62.44900

Figure 160. Meter 417 low-pass rotary coefficient

TEMPERATURE SPECTRUM



Variable : T
File : VACMF
Meter : 417
Lat. : 13.40500
Long 62.44900
Array B
Depth . 793
Start . 15 AUG 1978
End : 5 FEB 1979

Figure 161. Meter 417 low-pass temperature spectrum

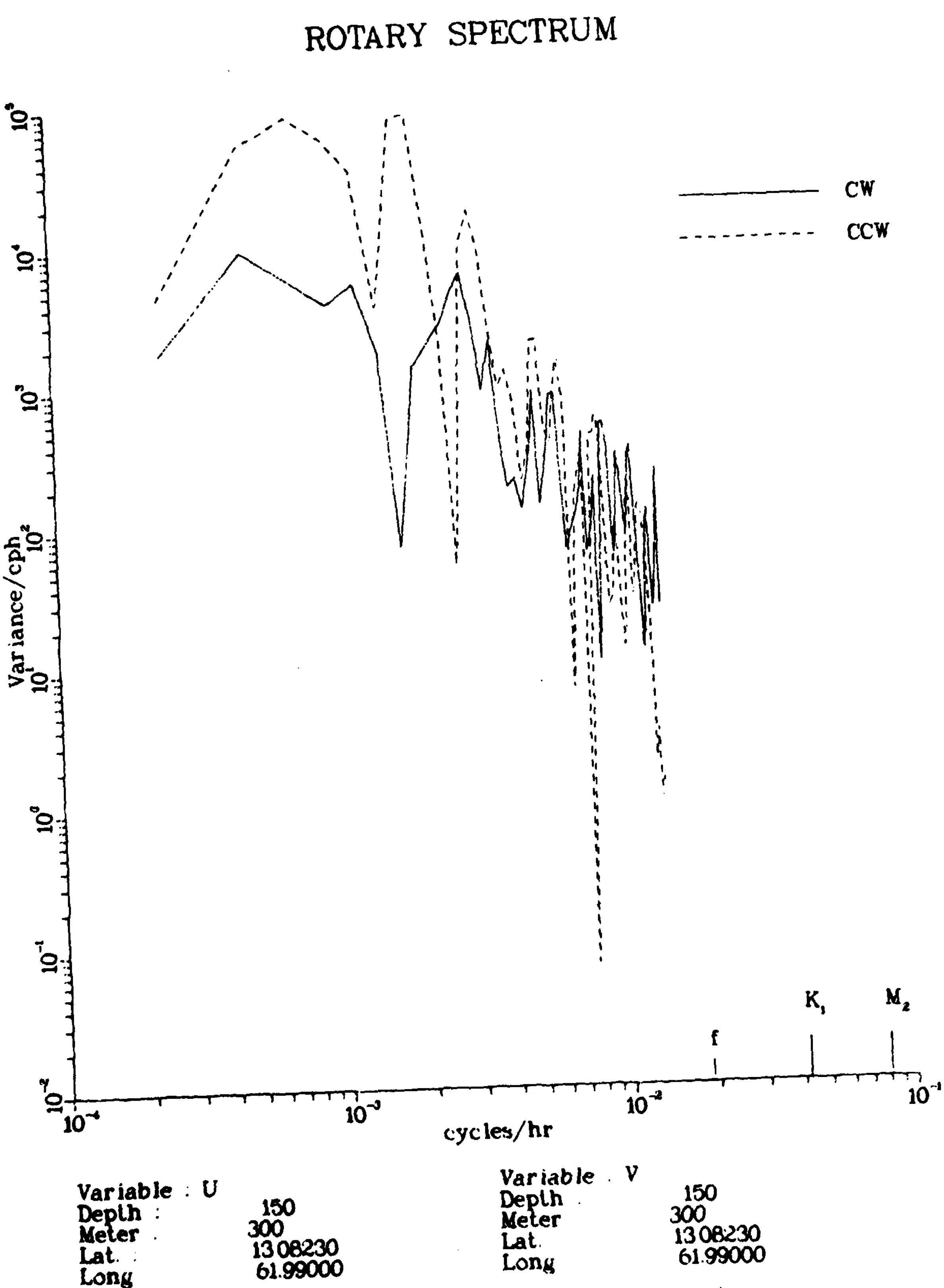
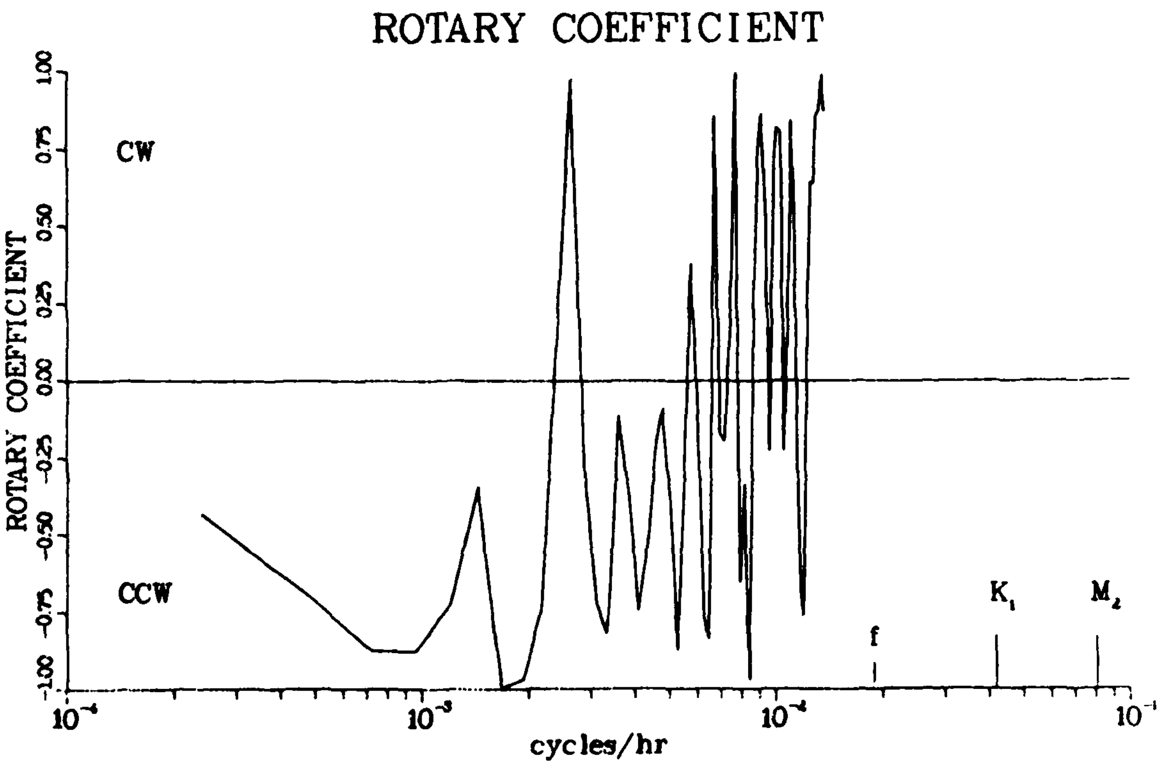
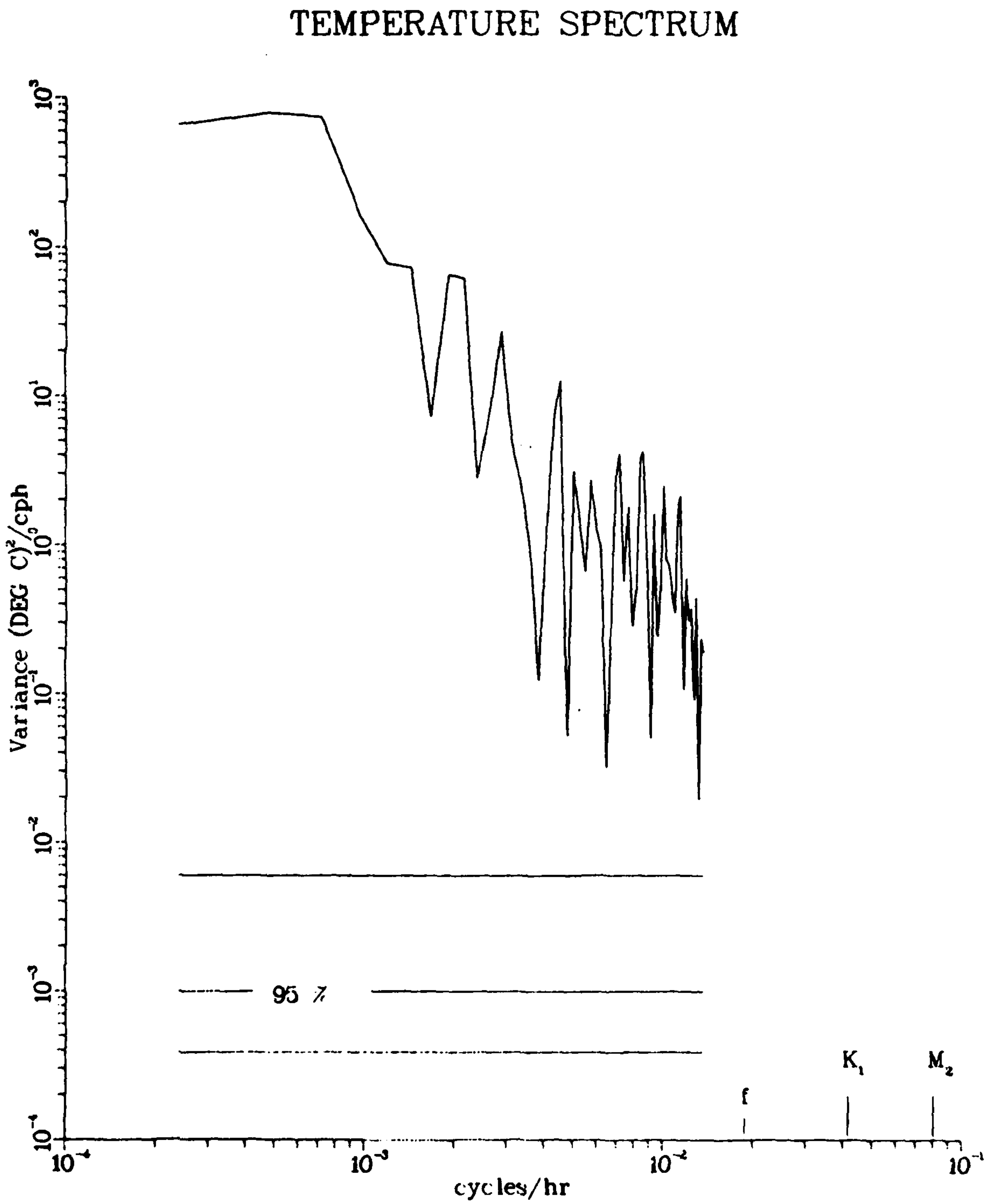


Figure 162. Meter 300 low-pass rotary spectrum



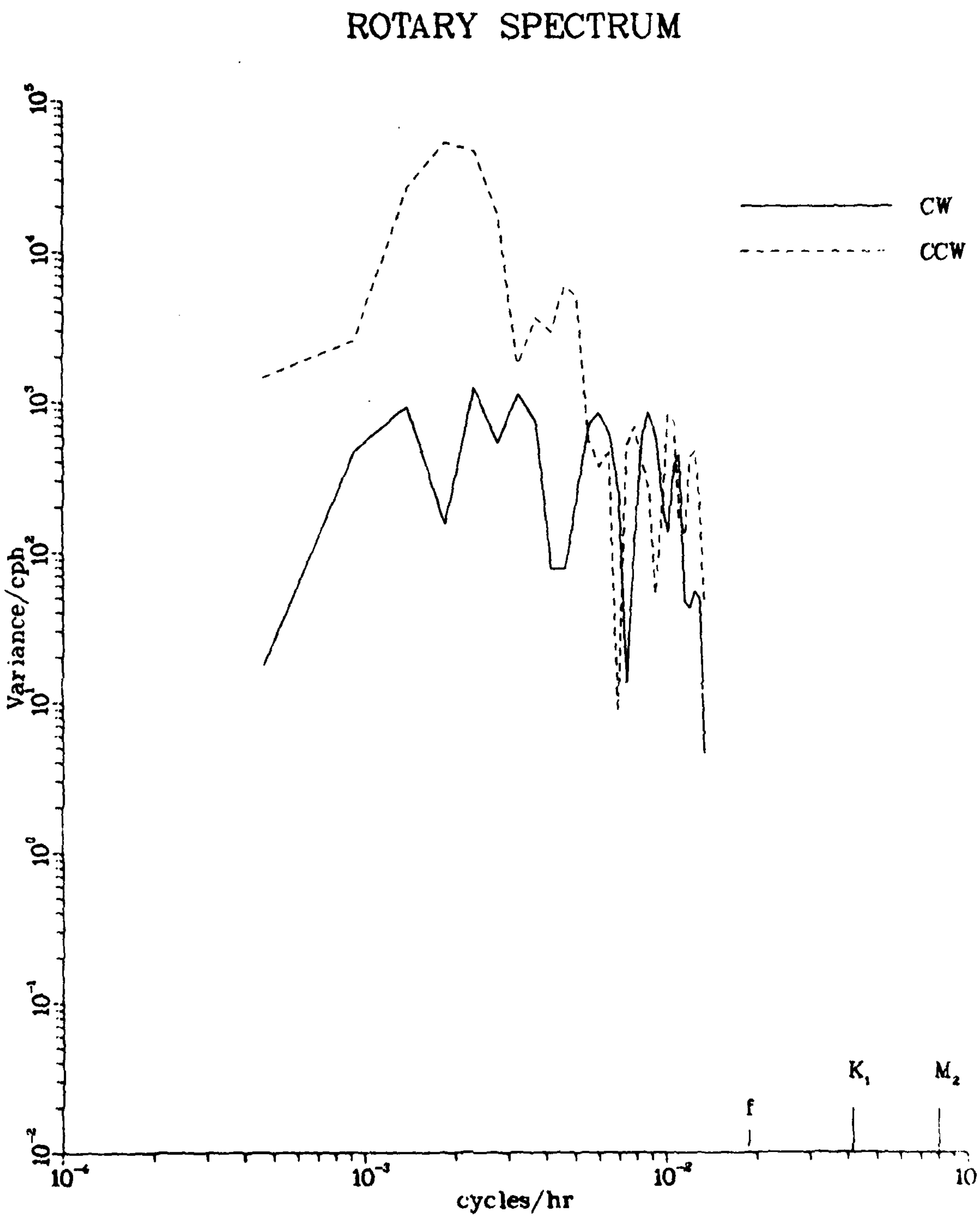
Variable : U		Variable : V	
Depth :	150	Depth .	150
Meter :	300	Meter	300
Lat.	13.08230	Lat.	13.08230
Long	61.99000	Long	61.99000

Figure 163. Meter 300 low-pass rotary coefficient



Variable :	T	Array	C
File :	VACMF	Depth :	150
Meter :	300	Start	16 AUG 1978
Lat.	13.08230	End	6 FEB 1979
Long	61.99000		

Figure 164. Meter 300 low-pass temperature spectrum



Variable :	U	**Variable** .	V
Depth :	350	**Depth** :	350
Meter .	296	**Meter**	296
Lat. .	13.08230	**Lat.**	13.08230
Long	61.99000	**Long**	61.99000

Figure 165. Meter 296 low-pass rotary spectrum

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CURRENT METER DATA FROM THE SOUTHEASTERN CARIBBEAN SEA, AUGUST --ETC(U
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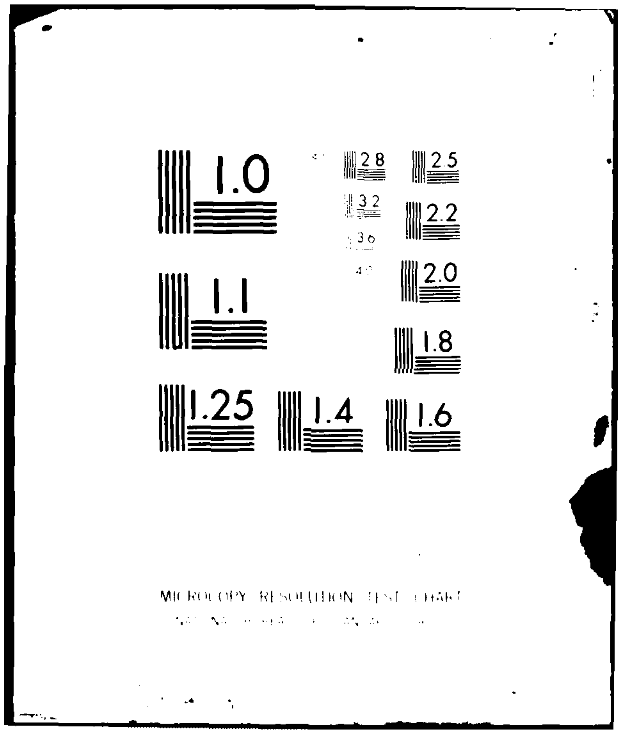
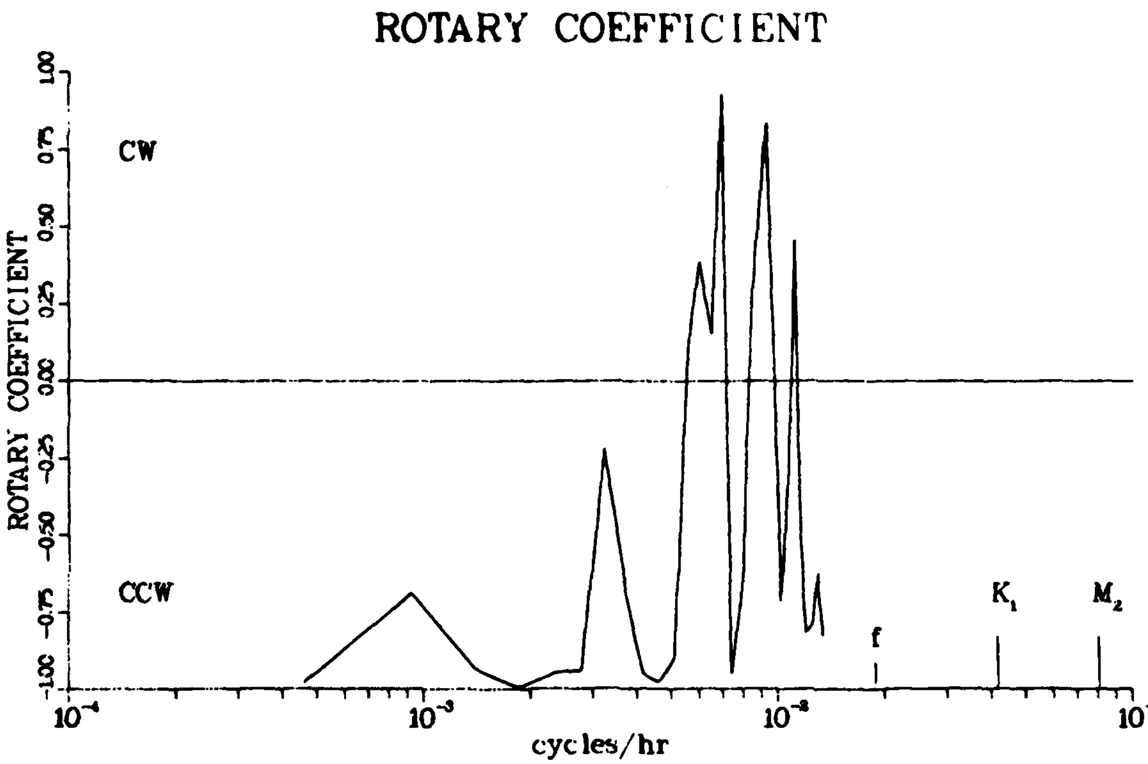
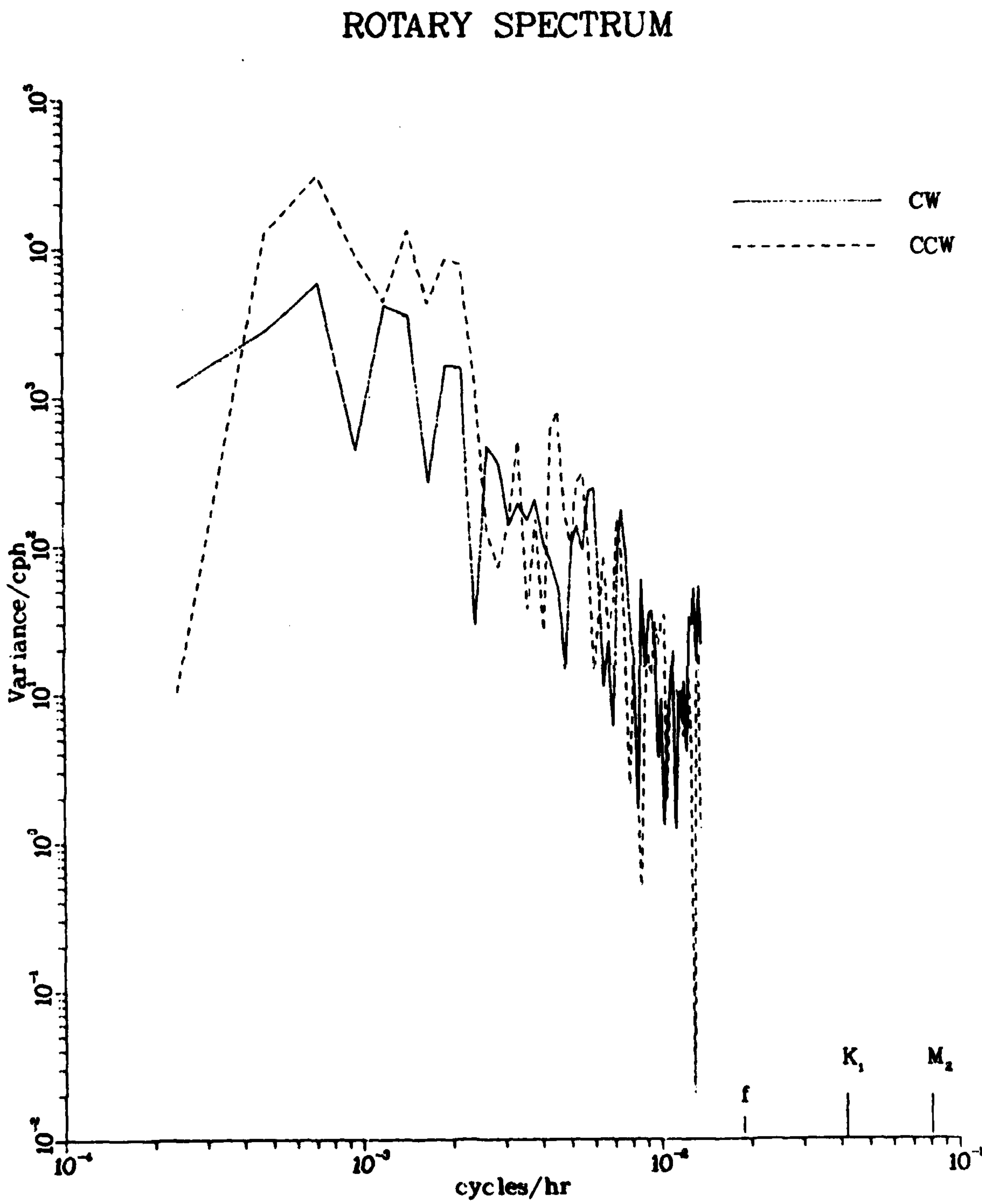

1.0
2.8
2.5
3.2
2.2
3.6
2.0
1.1
1.8
1.25
1.4
1.6
MICROCOPY RESOLUTION TEST CHART



Variable : U		Variable : V	
Depth :	350	Depth :	350
Meter :	296	Meter	296
Lat.	13.08230	Lat.	13.08230
Long	61.99000	Long	61.99000

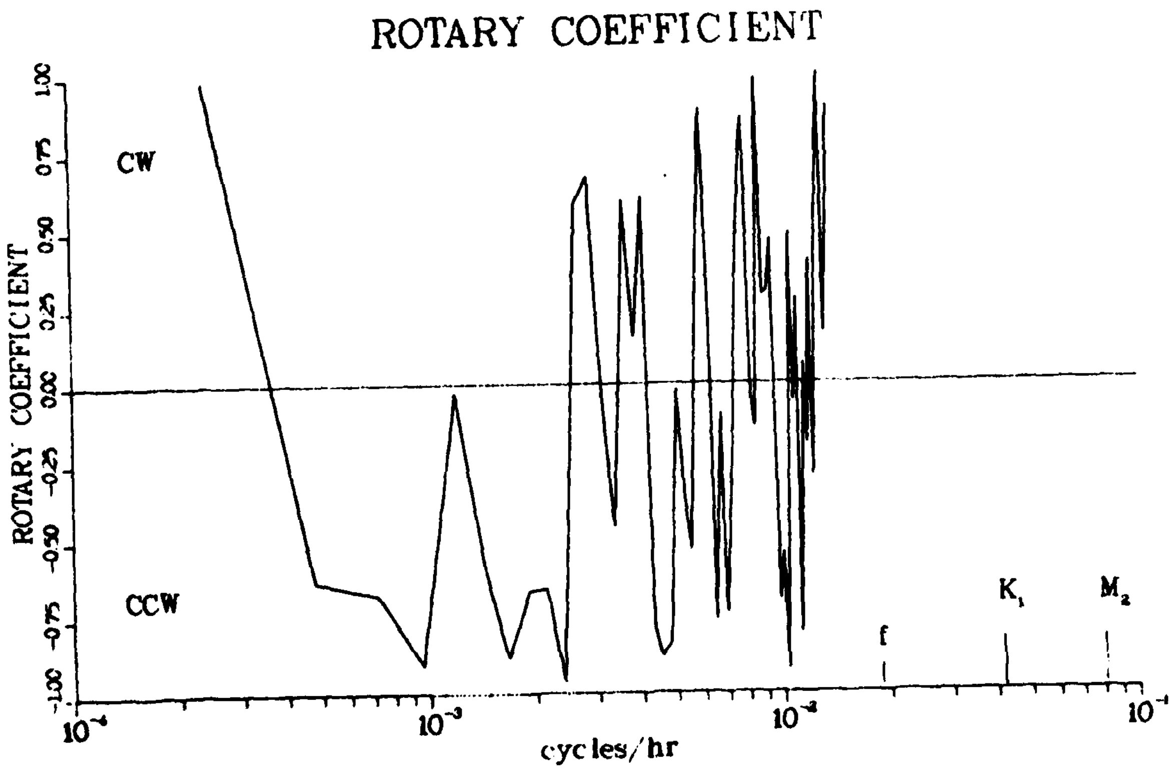
Figure 166. Meter 296 low-pass rotary coefficient



Variable : U
Depth . 750
Meter . 410
Lat. 13.08230
Long 61.99000

Variable . V
Depth . 750
Meter . 410
Lat. 13.08230
Long 61.99000

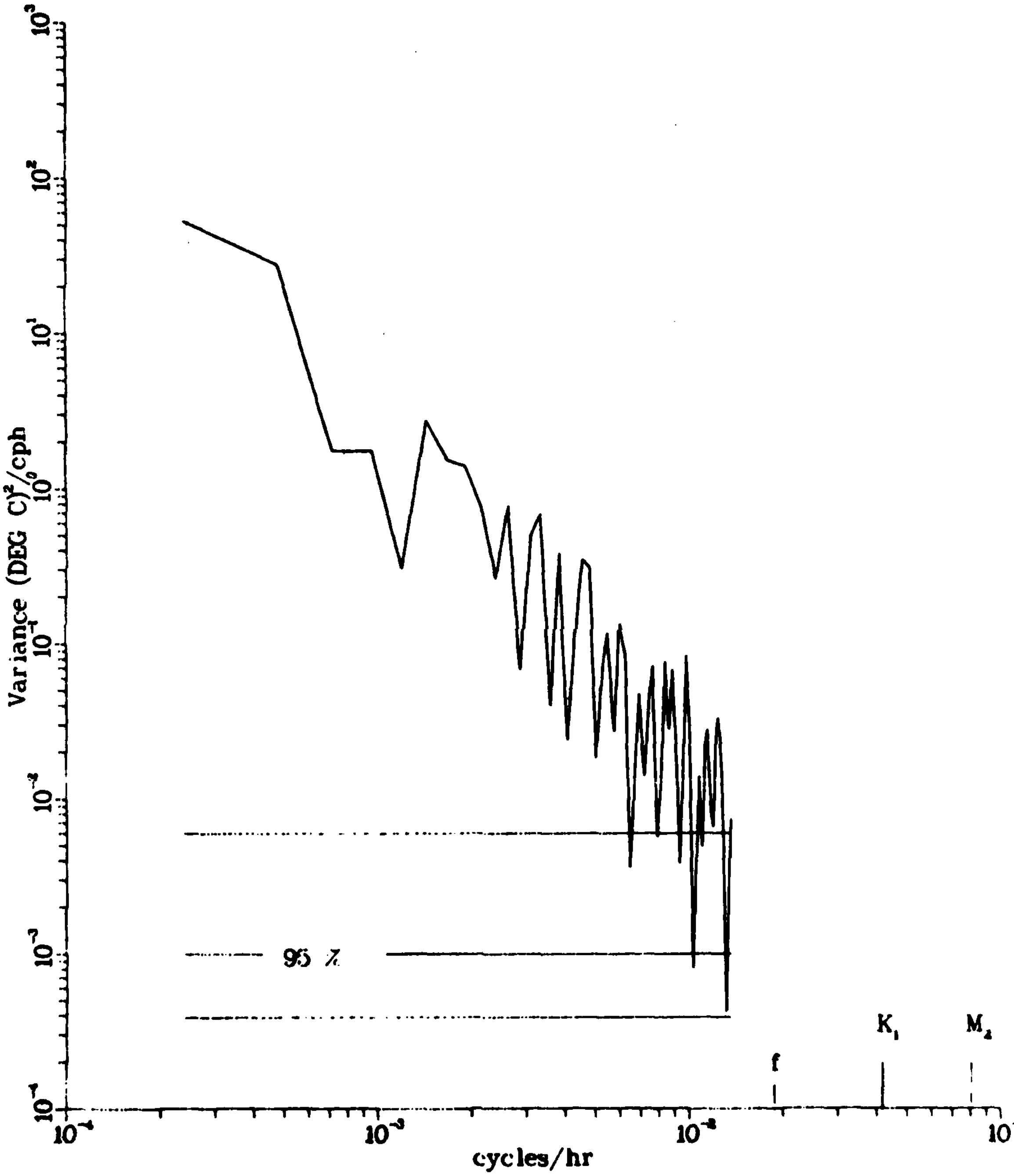
Figure 167. Meter 410 low-pass rotary spectrum



Variable : U		Variable	V
Depth	750	Depth	750
Meter	410	Meter	410
Lat.	13.08230	Lat	13.08230
Long	61.99000	Long	61.99000

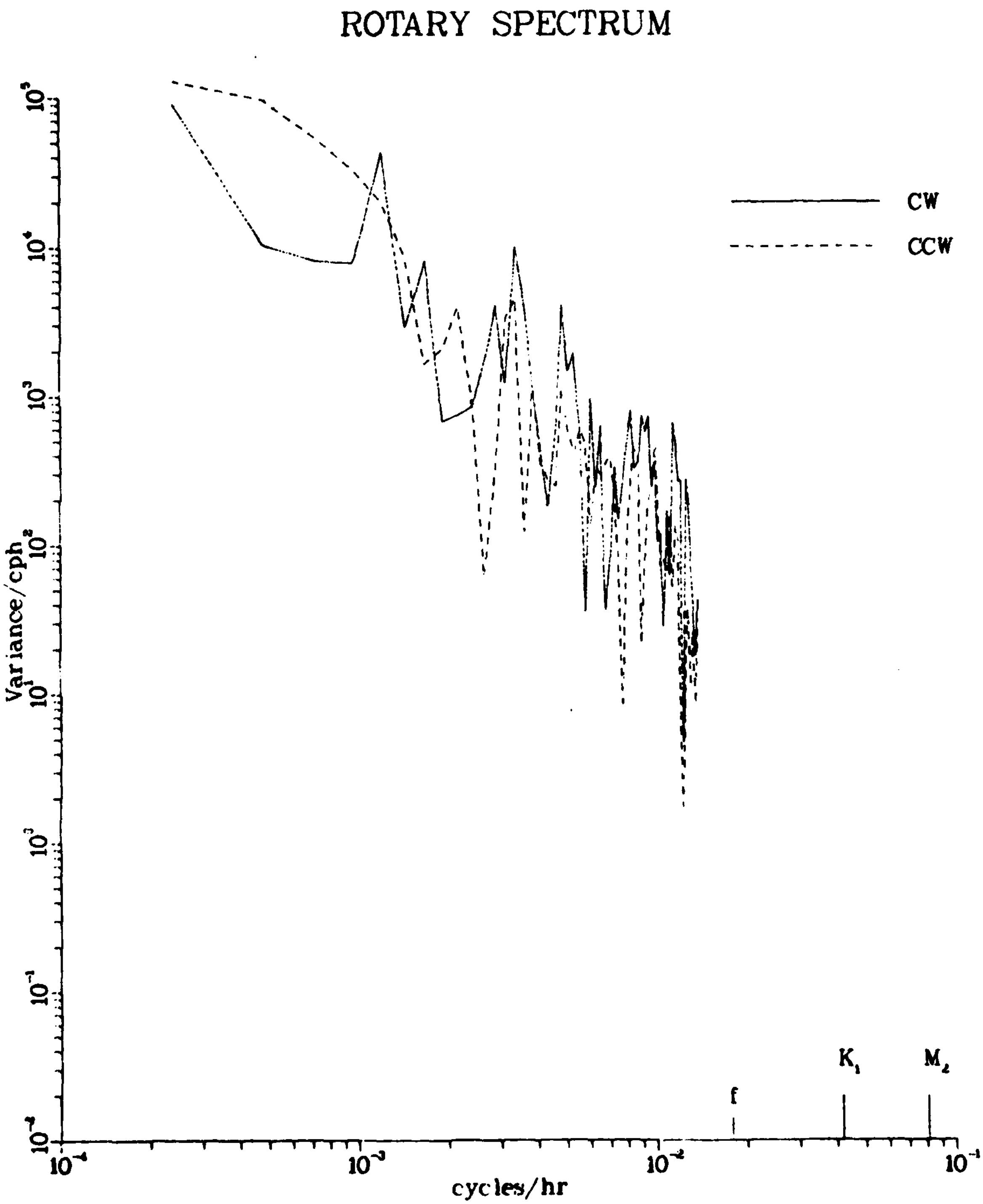
Figure 168. Meter 410 low-pass rotary coefficient

TEMPERATURE SPECTRUM



Variable :	T	Array	C
File :	VACMF	Depth	750
Meter :	410	Start	16 AUG 1978
Lat.	13.08230	End	6 FEB 1979
Long	61.99000		

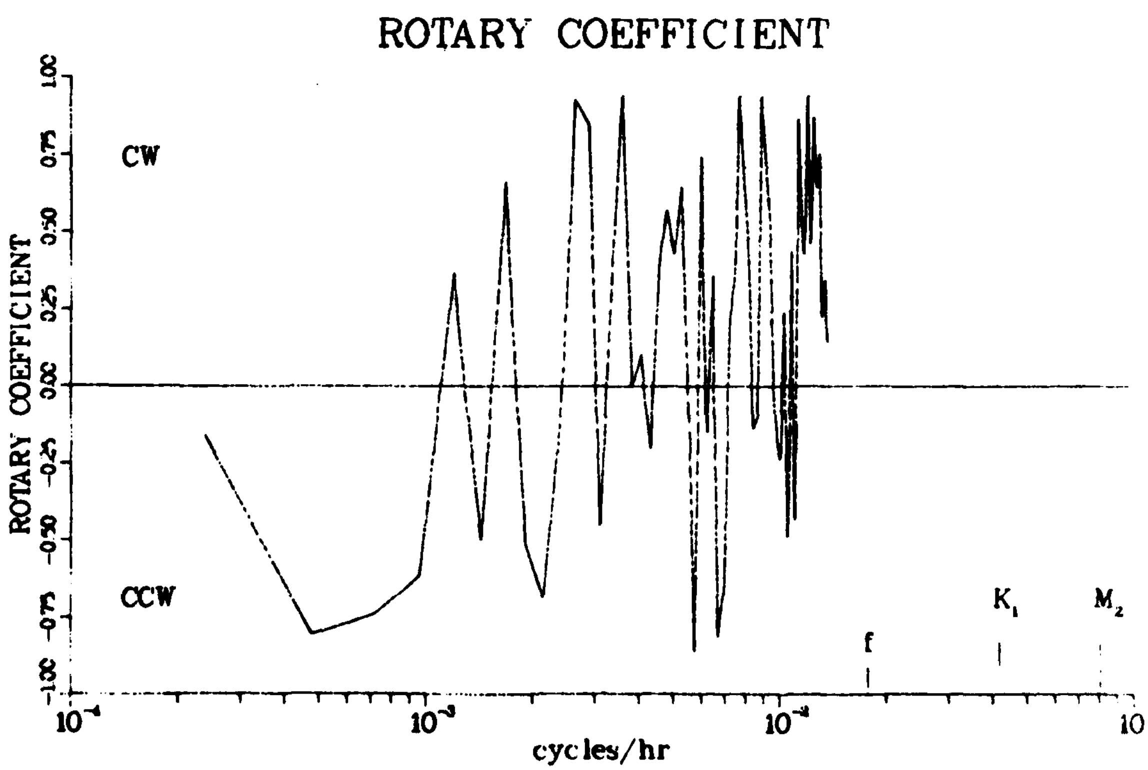
Figure 169. Meter 410 low-pass temperature spectrum



Variable : U
Depth . 150
Meter 289
Lat. 12.33000
Long 63.03000

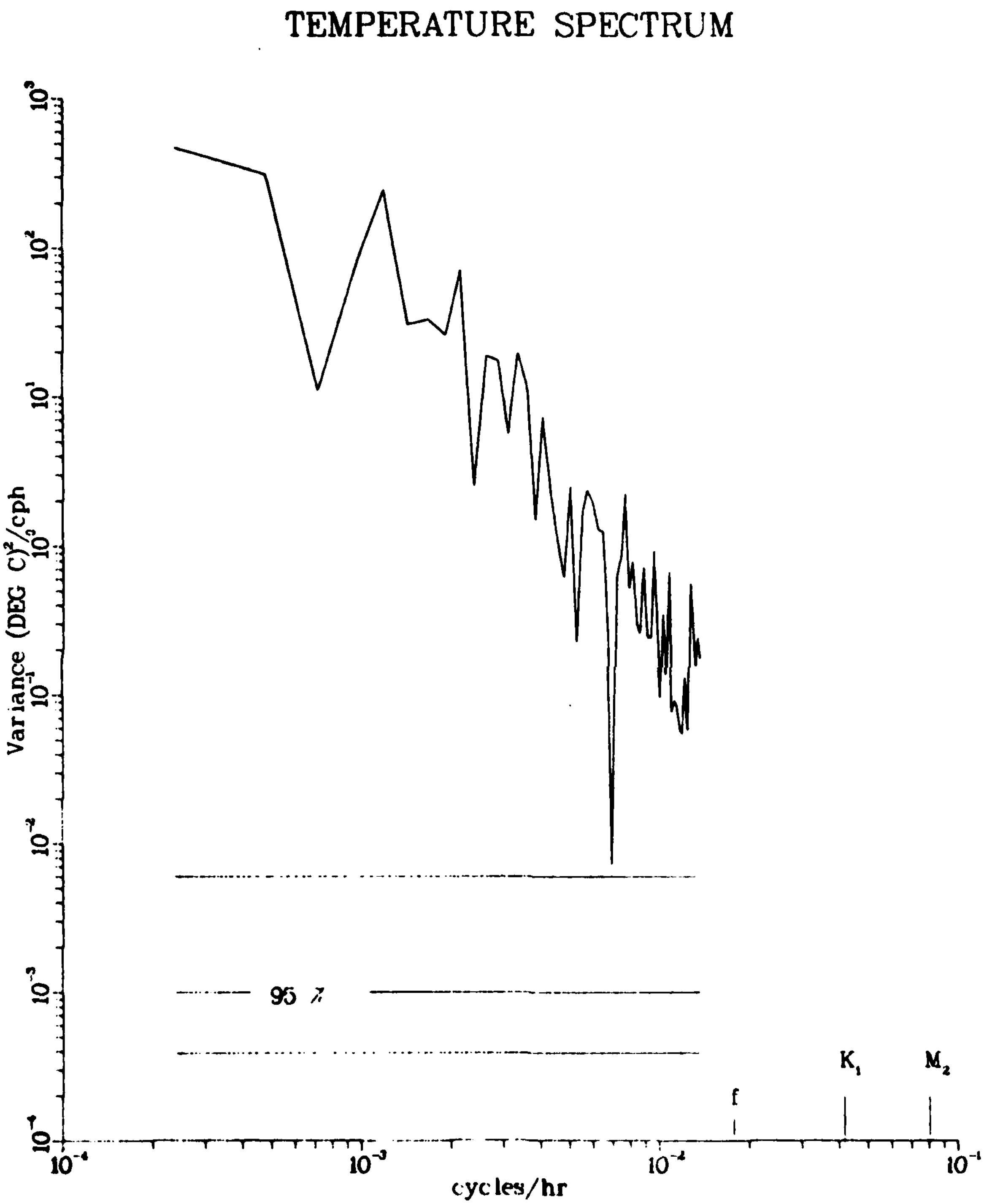
Variable . V
Depth . 150
Meter 289
Lat. 12.33000
Long 63.03000

Figure 170. Meter 289 low-pass rotary spectrum



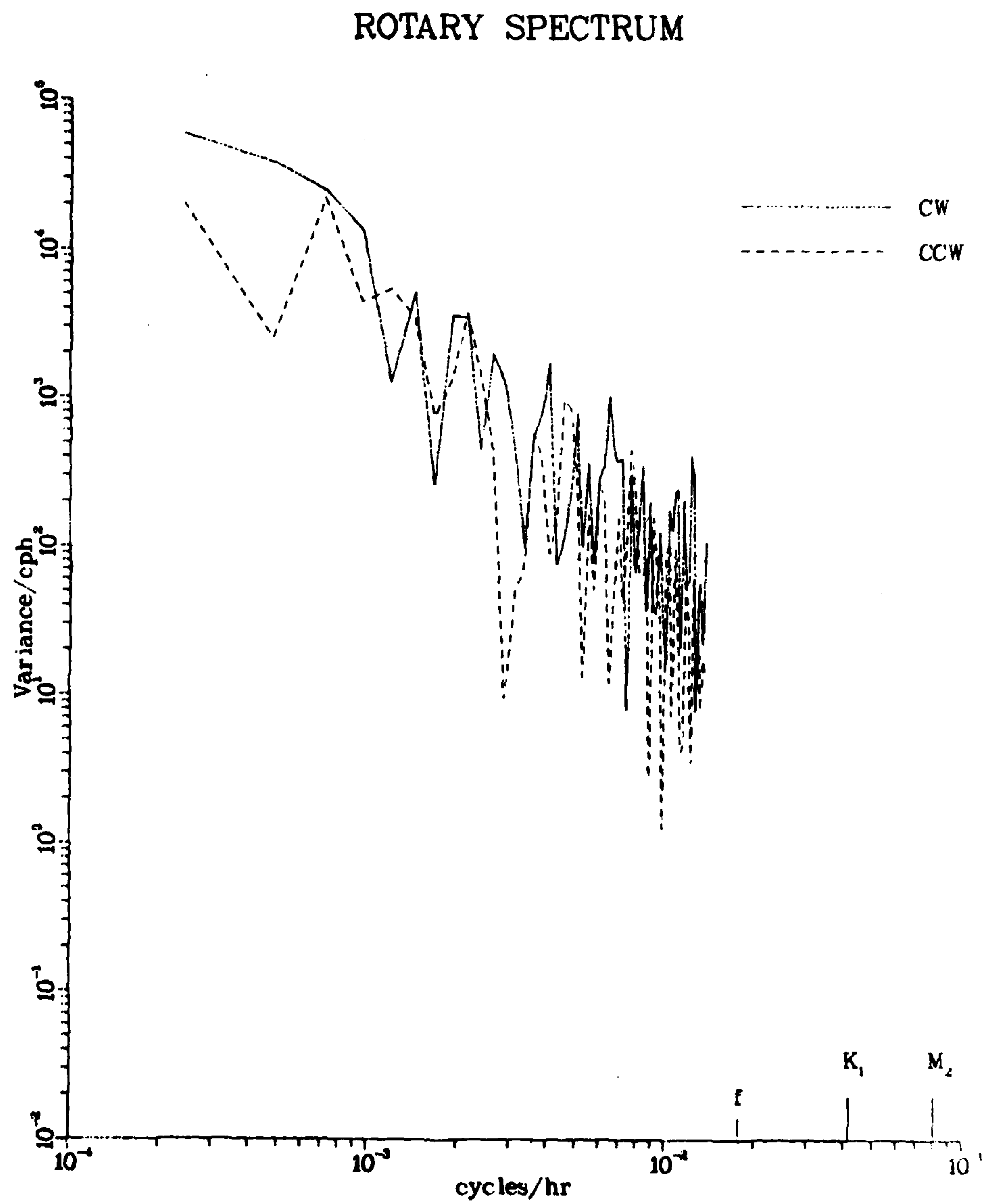
Variable : U		Variable : V	
Depth :	150	Depth .	150
Meter	289	Meter	289
Lat	12.33000	Lat.	12.33000
Long	63.03000	Long	63.03000

Figure 171. Meter 289 low-pass rotary coefficient



Variable	: T	Array	D
File	: VACMF	Depth	150
Meter	289	Start	16 AUG 1978
Lat.	12.33000	End	6 FEB 1979
Long	63.03000		

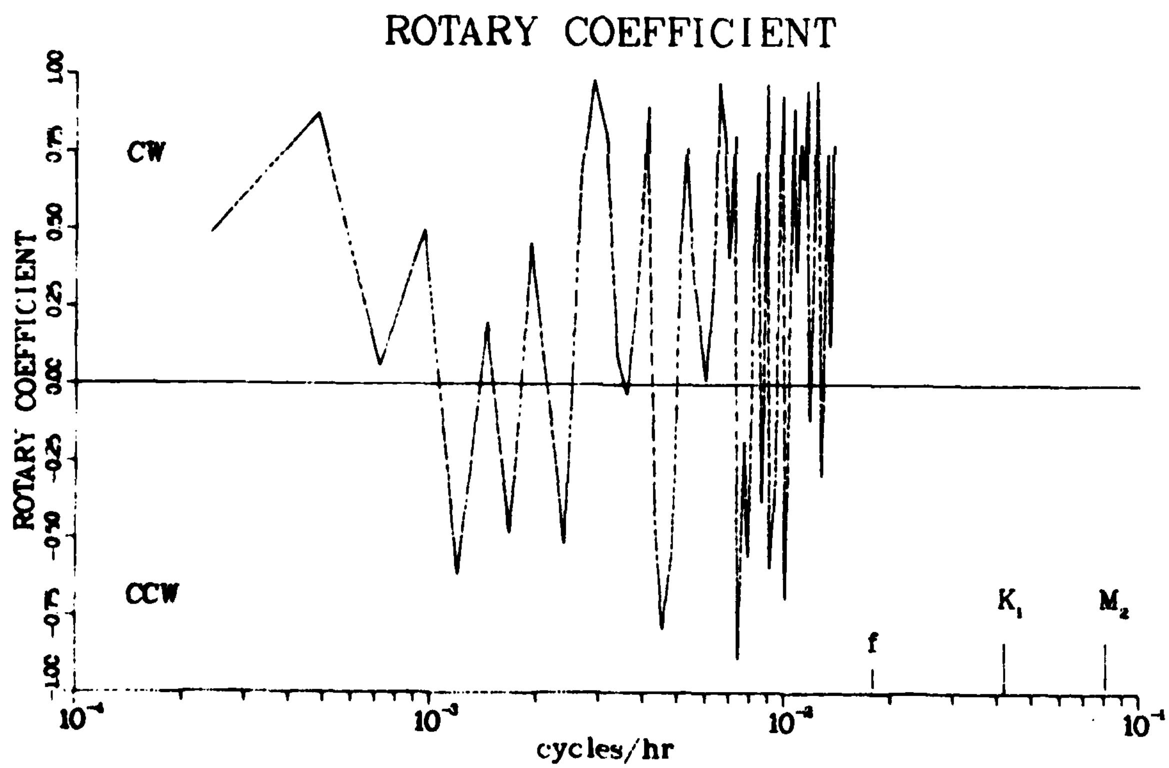
Figure 172. Meter 289 low-pass temperature spectrum



Variable : U
Depth . 750
Meter 407
Lat. 12.33000
Long 63.03000

Variable . V
Depth . 750
Meter 407
Lat. 12.33000
Long 63.03000

Figure 173. Meter 407 low-pass rotary spectrum

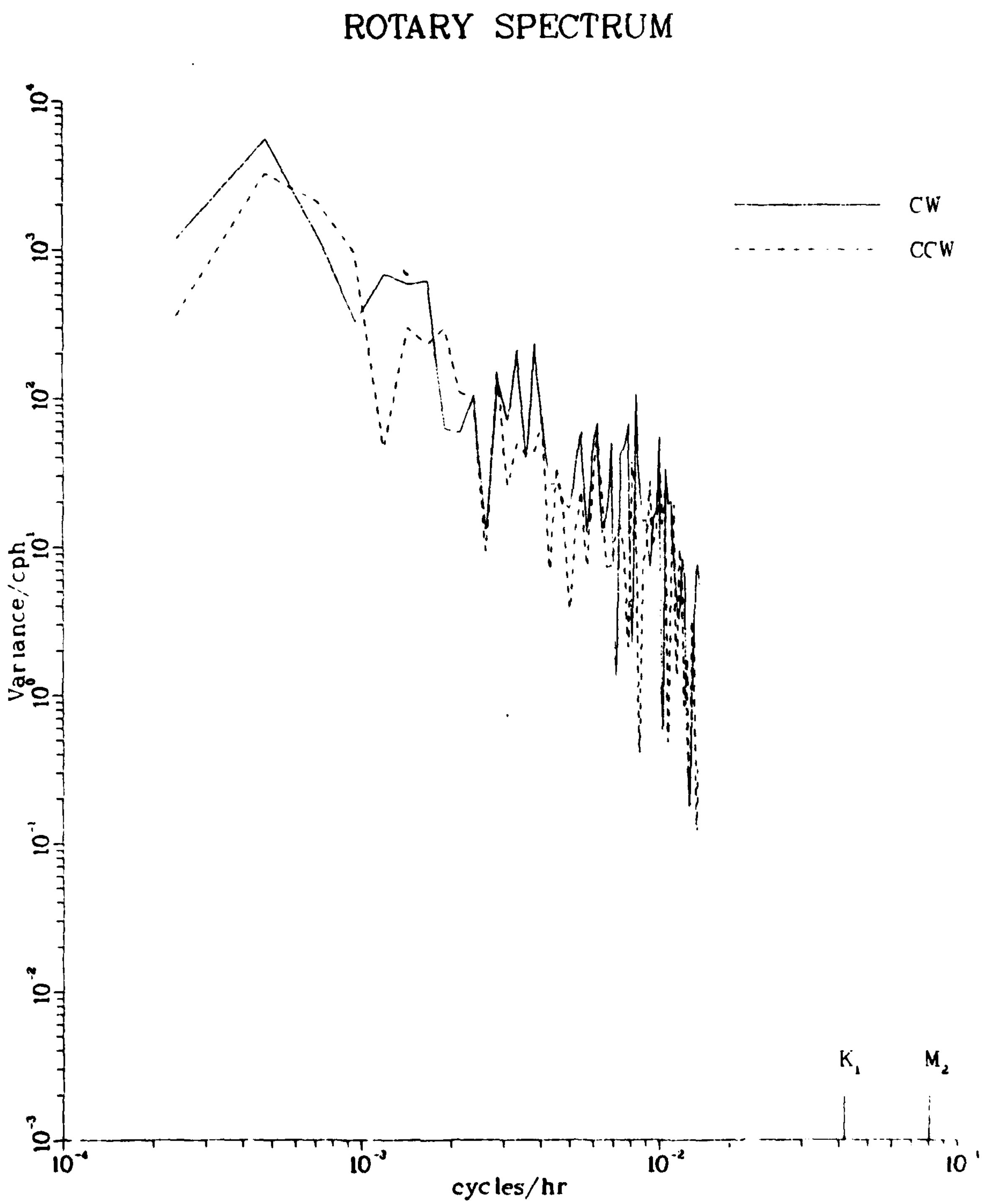


Variable : U		**Variable** : V	
Depth :	750	**Depth** :	750
Meter	407	**Meter**	407
Lat.	12.33000	**Lat.**	12.33000
Long	63.03000	**Long**	63.03000

Figure 174. Meter 407 low-pass rotary coefficient

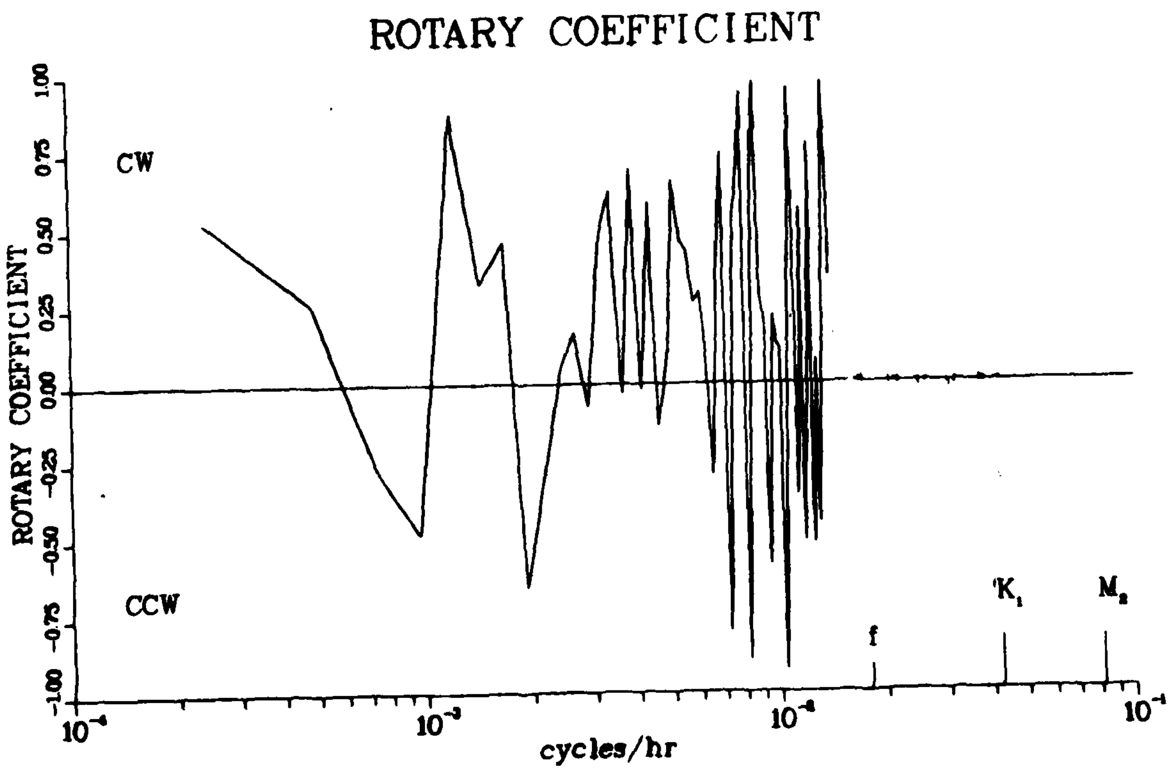
Variable : T
File : VACMF
Meter 407
Lat. 12.33000
Long 63.03000
Array : D
Depth : 750
Start : 16 AUG 1978
End : 6 FEB 1979

Figure 175. Meter 407 low-pass temperature spectrum



Variable	U	Variable	V
Depth	1500	Depth	1500
Meter	414	Meter	414
Lat	12.33000	Lat	12.33000
Long	63.03000	Long	63.03000

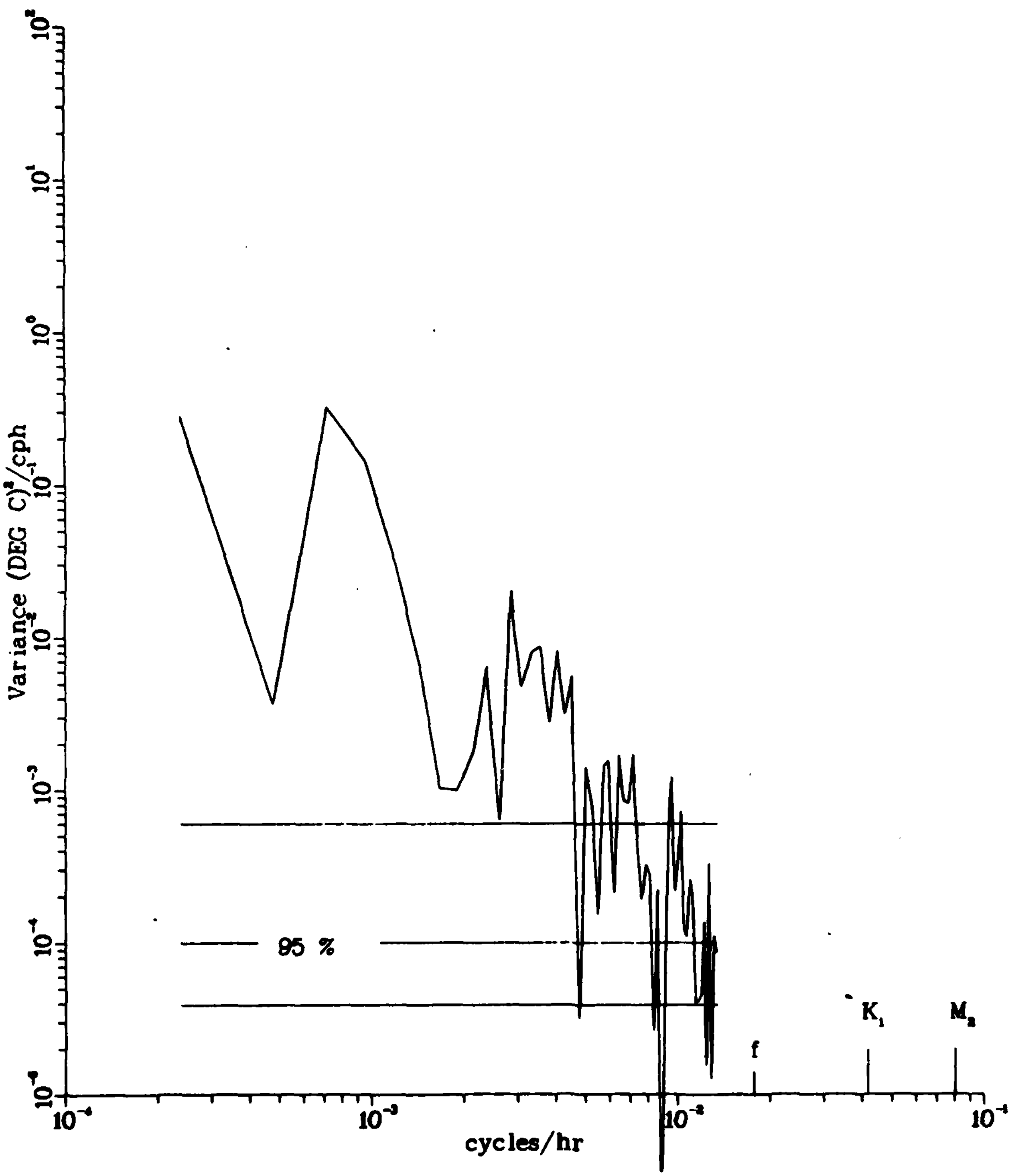
Figure 176. Meter 414 low-pass rotary spectrum



Variable : U		Variable : V	
Depth :	1500	Depth :	1500
Meter :	414	Meter :	414
Lat. :	12.33000	Lat. :	12.33000
Long. :	63.03000	Long. :	63.03000

Figure 177. Meter 414 low-pass rotary coefficient

TEMPERATURE SPECTRUM



Variable : T
File : VACMF
Meter : 414
Lat. : 12.33000
Long. : 63.03000

Array : D
Depth : 1500
Start : 16 AUG 1978
End : 6 FEB 1979

Figure 178. Meter 414 low-pass Temperature spectrum

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

9 REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER: NORDA Technical Note 76	2. GOVT ACCESSION NO.: AD-A098 904	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle): Current Meter Data from the Southeastern Caribbean Sea, August 1978 to February 1979		5. TYPE OF REPORT & PERIOD COVERED
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): Janice D. Boyd, Thomas H. Kinder		8. CONTRACT OR GRANT NUMBER(s): -TN-76
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Naval Ocean Research & Development Activity, Ocean Science & Technology Laboratory, Code 330, NSTL Station, Mississippi 39529		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: PE 62759N RF 59-553-800
11. CONTROLLING OFFICE NAME AND ADDRESS: 16 F 9 ... 11		12. REPORT DATE: September 1980
		13. NUMBER OF PAGES: 203
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office): 17 F 9		15. SECURITY CLASS. (of this report): UNCLASSIFIED
		15a. DECLASSIFICATION DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Grenada Basin
Lesser Antilles
Southeast Caribbean
Current meter measurements

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Thirteen vector-averaging current meters were deployed on four moorings in the southeastern Caribbean Sea from August 1978 to February 1979. Velocity and temperature data are presented graphically as time series, histograms, and as variance spectra. Low-pass filtered data (72 hour period at the half-power point) are presented graphically as progressive vector diagrams, vector diagrams (stick plots), time series, and spectra.

Scalar mean speeds ranged from 4 to 38 cm/s, and (mostly westwar... ...or

mean speeds from 2 to 36 cm/s (all but one were less than 9 cm/s). The velocity and temperature variance were distributed among three frequency bands: subinertial, inertial, and tidal. In the velocity spectra the subinertial variance accounted for an average of 50% of the total variance, inertial 5' , and tidal 10%. In the temperature spectra the subinertial accounted for 75 of the total variance, inertial 1%, and tidal 10%. Individual records had peaks at periods between 10 and 45 days.

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